EFFECTS OF FINANCIAL INCLUSION ON SMALLHOLDER FARMERS' PRODUCTIVITY IN BUSOGA REGION OF EASTERN UGANDA

MDP-IFAD RESEARCH REPORT

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EXECUTIVE SUMMARY

This study assessed the effects of financial inclusion on smallholder farmers' productivity in Busoga region of Eastern Uganda. It focused on the assessment of the Project for Financial Inclusion in Rural Areas (PROFIRA) of Uganda, by the International Fund for Agricultural Development (IFAD). Participants for the study are smallholder farmers who are members of the community-based Savings and Credit Cooperatives (SACCOs). A simple random sampling technique using Yamane (1967) method of selecting sample size was used to select 240 smallholder farmers from Kasolwe and Mbulamuti Savings and Credit Cooperatives at the Kamuli district, Busoga region of Eastern Uganda. Quantitative data was collected with structured questionnaire. The data collected was analysed using descriptive and inferential statistics to determine - the level of financial inclusion in the study area, the socio-economic characteristics of the smallholder farmers, and the productivity of the farmers in the Busoga Region of Eastern Uganda. Linear regression analysis using Ordinary Least Square (OLS) method was used to examine the effects of financial inclusion on the smallholder farmers' productivity. A test of the hypothesis was conducted using independent sample t-test for the significance difference of male and female smallholder farmers on financial inclusion.

The results of the analyses show that smallholder farmers in the study area enjoy financial services by being a member of the community-based Savings and Credit Cooperatives society (SACCOs). Using farm productivity function as stated by the Neo-classical production theory, the farmers productivity was expressed as a function of the financial inclusion and other socio-economic characteristic of the smallholder farmers, which determine the input factors of farm productivity. The regression result indicates that amount of loan received, duration of loan, farmland size, labour and farm income have significant positive effects on the smallholders' productivity ($p < 0.01$), and an increase in these variables will significantly increase farmers productivity. The study concludes and recommend that financial inclusion is an important driver of smallholder farmers' productivity. There exists no significant difference in the financial inclusion of both male and female farmers who are members of the community-based savings and credit cooperatives (SACCOs). Also, financial inclusion of the rural smallholder farmers does not only increase their productivity, but also have impact on their livelihoods. Community-based savings and credit cooperatives (SACCOs) group should therefore be assisted and backed up by the stakeholders by officially recognizing them as group under financial institution dedicated to improving rural productivity.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Credit and financial services play very crucial role in the growth and development of an economy. There is increasingly robust evidence that promoting access to inclusive rural financial services shows positive impact at the microeconomic level, improving household welfare and local economic activities. Also, at the macroeconomic level, the degree of financial intermediation is positively correlated with growth (IFAD, 2016). Policymakers increasingly recognise that an inclusive financial market allows for more effective and efficient achievement of other policy objectives. Several researches have indicated that a well-functioning and inclusive financial system is linked to a faster and equitable growth. There is wide range of personal finance options for higher and upper middle-income population in the form of financially engineered and innovative products whereas a significantly large section of population (rural) still lack access to the most basic financial services. This is termed as "financial exclusion" which further leads to social exclusion. So, it is necessary to provide individuals (especially the rural dwellers) with easy and affordable institutional financial products or services popularly called "financial inclusion". Universally, it is accepted that the objective of financial inclusion is to extend the scope of activities of the organised financial system to include within its ambit the people with low incomes (Joseph and Varghese, 2014).

Non-inclusion from the formal financial system has increasingly been identified as a barrier to eradicating poverty (Donovan, 2012). The poor people, especially the rural dwellers disproportionately encountered challenges such as economic shocks, food insecurity and climate change. Lack of access to financial services such as credit and savings reduces their ability to invest, save and respond to these shocks. Rural poor households are typically excluded from formal financial sector opportunities. In fact, it is estimated that less than 10 per cent of poor rural households have access to the most basic financial services (IFAD, 2016). The implication of this is that at the macro level, low levels of financial inclusion lead to lower economic growth and exacerbate income inequality since these households earn their income as smallholder farmers or are self-employed or work in the informal economy.

Financial inclusion, therefore, refers to the absence of price or non-price barriers in the use of financial services (Sharma and Kukreja, 2013). In other words, financial inclusion comprises all initiatives that make formal financial services available, accessible and affordable to all segments of the population (AFI, 2013). It can also be defined as the process of ensuring access to financial services and timely

and adequate credit where needed by vulnerable groups such as rural women, youths, farmers, and low-income groups at an affordable cost.

1.1.1 Importance of Financial Inclusion to Agricultural Productivity

The importance of financial inclusion is highlighted by a growing body of literatures and backed by extensive evidence (Mehrotra and Yetman, 2015). It is multifaceted, due to its nature. It has different definitions measured by different indicators and has an impact on some macroeconomic indicators. The Alliance for Financial Inclusion (AFI) stated that financial inclusion should concentrate on four major indicators namely - access, usage, quality and wellbeing (Roa, 2015). According to this institute the indicator access represents the possibility to obtain financial services and products from formal institutions. Usage at the other hand proxies the performance, depth or extent of financial services and product being used. Quality should indicate whether the delivered products and services are in accordance with the needs of clients and if when financial products are being developed these needs are taken into considerations. Wellbeing signals the effect that financial services have had on consumers' living.

The agricultural sector continues to play a vital role for economic growth and sustainable development, and it is widely acknowledged that the development of the agricultural sector is an effective instrument to alleviating poverty and enhanced food security (Miller et al., 2010). Kimathi et al, (2008) state that enhanced access to financing triggers real incomes that will increase substantially across poor communities, value chain players and market players. Therefore, growth in agricultural productivity is likely to directly impact on economic growth with strong effects on poverty. Notwithstanding their socioeconomic importance, smallholder farmers face a myriad of constraints; key amongst them, access to finance. Simplified access to capital and other financial services, plays an important role in the overall strategy to improve the productivity of smallholders, their livelihood and food security while promoting improved agricultural yields. Additionally, other financial services such as saving products and insurance may reduce the risk of external shocks, smooth cyclical cash flows of farmers and help them manage their farm as a viable business.

On the other hand, access to finance will enable producers in the agriculture sector to dispose of the surplus realised to neighbouring countries. Market is one of the major obstacles facing producers in the agribusiness sector resulting to the spoilage of the surpluses blamed on insufficient capital to afford quality and standard package materials. Easing access to finance will enable producers to pack their produce in standard packages to export them to other countries and hence earn foreign currency (Ajibike et al., 2018).

Agricultural production is strongly conditioned by the fact that inputs are transformed into outputs with considerable time lags (Conning and Udry, 2005), causing the rural household to balance its budget during the season when expenditure is high for input purchases and consumption and revenue is small. With limited access to credit, the budget balance within the year can become a constraint to agricultural production. When liquidity is a binding constraint, the amounts and combinations of inputs used by a farmer may deviate from optimal levels that in turn limit optimum production or consumption choices. Economic theory suggests that farmers facing binding capital constraints would tend to use lower levels and combinations of inputs than those whose production activities are not limited by capital constraints (Freeman et al., 1998). The implication of this is that access to credit could increase rural poor households' willingness to adopt new technologies that raise both mean levels and riskiness of income (Rosenzweig and Binswanger, 1993).

1.1.2 Financial Inclusion and the Sustainable Development Goals (SDGs)

The origin of the current approach to financial inclusion can be traced to the United Nations initiatives, which broadly described the main goals of inclusive finance as access to a range of financial services including savings, credit, insurance, remittance and other banking and payment services to all 'bankable' households and enterprises at a reasonable cost. The World Bank Group takes a comprehensive approach to promote financial inclusion among the 2.5 billion adults who lack access to formal financial services. With continuing support from the World Bank Group, the Alliance for Financial Inclusion, and others, 38 countries have now made headline commitments to financial inclusion targets and action plans, with countries such as South Africa, India, the UK, and Brazil leading the way in prioritizing financial inclusion. The World Bank is committed to support low- and middle-income countries in designing reforms and other initiatives to meet the goals through a planned Financial Inclusion Support Framework (Joseph and Varghese, 2014).

Linking financial inclusion to sustainability, not less than 7 goals of the Sustainable Development Goals (SDGs) have financial inclusion in their targets, most especially for women, young and rural people in order to achieve the goals by 2030. It is positioned prominently as an enabler of other developmental goals in the 2030 global goals, where it is included as a target in eight of the seventeen Sustainable Development Goals. These include SDG1, on eradicating poverty; SDG 2 on ending hunger, achieving food security and promoting sustainable agriculture; SDG 3 on profiting health and well-being; SDG 5 on achieving gender equality and economic empowerment of women; SDG 8 on promoting economic growth and jobs; SDG 9 on supporting industry, innovation, and infrastructure; and SDG 10 on reducing inequality. Additionally, in SDG 17 on strengthening the means of implementation there is an implicit role for greater financial inclusion through greater savings

mobilization for investment and consumption that can spur growth. As indicated in Figure 1, for instance, goal 1 of SDGs has in its targets by 2030, ensure that all men and women, particularly the poor and the vulnerable, have equal rights to economic resources and financial services including microfinance. It is therefore evident from this that financial inclusion is necessary to achieving inclusive development in a sustainable manner.

Figure 1: Nexus between Financial Inclusion and the SDGs
Source: *IFAD (2016)*

Financial inclusion is therefore an innovative concept which helps to achieve the sustainable development of the country, by making available financial services to the unreached people with the help of financial institutions (Joseph and Varghese, 2014). It is concerned with providing financial and banking services on lower costs to rural people and low section of society. It can be a great weapon to overcome financial backwardness, eradicate poverty and hunger. Access to credit and financial services plays a critical part in development by facilitating economic growth and reducing income inequality. Inclusive financial systems allow poor people to smooth their consumption and insure themselves against the many economic, social and environmental vulnerabilities they face—from illness and accidents to theft and unemployment, food insecurity and climate change. It enables poor people to save and to borrow—allowing them to build their assets, to invest in education and entrepreneurial ventures, to build resilience and mitigate against any shocks or stresses and thus to

improve their livelihoods. It is likely to benefit disadvantaged groups such as women, youth, and rural communities (World Bank, 2012). For all these reasons financial inclusion has gained prominent ground to achieve all the seventeen sustainable development goals of the United Nations.

1.2 Problem Statement

Access to financial services in rural areas allows poor people to manage their household cash flows, start new agricultural activities and set up small businesses. When poor rural people have higher earnings and safe ways to save their money, they can pay for healthcare and education, and plan and invest in the future of their farms or enterprises. It has been established by past studies that inclusive rural financial services are particularly important for poor women and young people. However, women are often at the lowest levels of rural societies. The status of women in their homes and in their communities improves when they are responsible for loans and manage their households' budget. Generally, financial services extended to women have a greater positive impact on household food consumption and on the quality of life for children than similar loans to men (IFAD, 2016).

Traditionally, formal financial institutions have avoided or failed to offer sustainable services in rural areas (e.g. rural or agricultural development banks). Thus, informal or semi-formal financial institutions as well as alternative providers like traders or input suppliers have become major providers of financial services. However, these informal providers often have weak institutional and managerial capacity; and operating in isolation from the financial system has let some of these providers charge steep interest rates. People living in rural areas may need access to financial services to purchase agriculture inputs; obtain veterinary services; maintain infrastructure; contract labour for planting/harvesting; transport goods to markets; make/receive payments; manage peak season incomes to cover expenses in low seasons; invest in education, shelter, health; or deal with emergencies (ILO, 2008). Also, climate change is impacting rural areas most severely. Rural communities cannot cope and adapt to growing incidences of drought, flooding or storms without access to insurance or emergency loans to deal with these sudden shocks, or to long-term finance for venturing into less risky businesses. Transaction costs in rural areas, especially in remote areas, are high due to low population density, lack of infrastructure (communications, electricity, transportation), security challenges and small average loan amounts. This makes financial services expensive. Prohibitive transaction costs also discourage people to deposit savings, thereby depriving households of building financial assets.

Financial inclusion broadens the resource base of the financial system by developing a culture of savings among large segment of rural population and plays its own role in the process of economic development. Further, by bringing low income groups within the perimeter of formal banking sector; financial inclusion protects their financial wealth and other resources in exigent circumstances (Joseph

and Varghese, 2014). Moreover, there are various socio-cultural and economic issues that hinder the process of financial inclusion. For instance, on demand side, it includes lack of awareness and illiteracy. From supply side, type of products, services, infrastructure or high cost involved in financial inclusion seem to be some likely reasons for financial exclusion (Sharma, Jain and Gupta, 2014). Generally, the weaker sections of the society are completely ignored by the formal financial institutions in the race of making chunks of profits or the complexities involved in providing finance (transaction cost) to the weaker section (Joseph and Varghese, 2014). Hence, the IFAD project for financial inclusion in the rural areas.

According to the report on Uganda Financial Services Inclusion Programme as prepared by the Department for International Development (DFID) Uganda in 2012, a total of 1.78 million men and 2.4 million women, and most small and medium businesses in Uganda do not have access to services that allow them to make the most of their financial resources. Lack of access to financial services in Uganda has been identified as a key constraint both to economic growth and to people moving out of poverty. The World Bank's 2007 Country Economic Memorandum notes that lack of access to financial services is the second most important binding constraint for continuing economic growth in Uganda; on poverty reduction, international evidence shows that better financial services significantly increase the financial security of the poor by allowing them to better withstand economic shocks and take advantage of economic opportunities. Therefore, it is important to assess the impact of project for financial inclusion in rural areas of Uganda.

1.3 Justification of the Study

Mobilisation and circulation of finance is the primary requirement of development of an economy. Achieving inclusive growth makes financial inclusion a key policy concern for a developing nation like Uganda. In Uganda, various efforts have been made both by the Government and its partners to sustainably improve financial inclusion. For instance, the Project for Financial Inclusion in Rural Areas (PROFIRA) was designed in 2013 in partnership between IFAD and the Government of Uganda. In September 2013, IFAD approved a loan of USD 29 million and a grant of USD 1 million in support to this project. The project development objective is to sustainably increase access to, and use of, financial services by the rural population in the target areas of Uganda. As contained in the 2017 Supervision report of the project, overall project implementation is progressing well, with a clear upward trend of increasing performance. It is on this development that this study seeks to provide a micro perspective on the impact of PROFIRA in the rural areas. This study hypothesizes that financial inclusion increases the productivity of the smallholder farmers.

However, the nexus between a sound financial system, economic growth and development has been researched for a long time and numerous theoretical and empirical studies show a positive relationship. This is no different for developing the rural economy and basing such development on financial inclusion. However, rural communities are highly underserved by financial services. Both government and international organizations are taking initiatives to promote financial inclusion in rural areas so that any household, individual and community can get access to credit and financial services. So, there exist several gaps regarding the implementation of the financial inclusion drive at ground level to sustainably increase access to, and use of, financial services by the rural population especially the young and women small holder farmers in the target area. This study therefore assesses the effects of the project for financial inclusion on smallholder farmers' productivity in the rural areas of Uganda, using Busoga region of Eastern Uganda as the case study.

1.4 Research Questions

The study provides answers to the following research questions:

1. What are the socio-economic characteristics of the smallholder farmers in the study area
2. What is the level of financial inclusion in the Busoga region of Eastern Uganda?
3. What is the productivity level of the smallholder farmers in the study areas?
4. What is the effect of financial inclusion on smallholder farmers' productivity in the study areas?

1.5 Objectives of the Study

The main goal of this study is to determine the impact of financial inclusion on the productivity of smallholder farmers in the rural areas of Uganda, using Busoga region of Eastern Uganda as the case studies. The specific objectives of the study are therefore to;

1. determine the socio-economic characteristics of the smallholder farmers in the study area
2. access the level of financial inclusion in the Busoga region of Eastern Uganda;
3. examine the productivity level of the smallholder farmers in the study areas;
4. evaluate the effect of financial inclusion on the smallholder farmers' productivity in the study area.

1.6 Hypothesis of the Study

This study is based on the following null (H_0) and alternative hypothesis (H_1):

H_0: there is no significant difference in the financial inclusion of male and female smallholder farmers in the study area;

H_1: there is a significant difference in the financial inclusion of male and female smallholder farmers in the study area.

1.7 Definition of Concepts

Formally served: The 'formally served' are those who have access to financial services from a bank and/or other formal providers (all other legal entities licensed to provide financial services). The 'financially served' includes those who formally served as well as people who use informal providers (i.e., other organized providers of financial services that are not registered as financial intermediaries and not subject to any oversight). In contrast, the term 'financially excluded' is used to illustrate individuals who have no access at all.

Access exclusion: a restriction of access to financial services, which might be rooted by unfavourable risk assessments.

Condition exclusion: some individuals cannot benefit from financial services due to conditions attached to the offered product/services.

Price exclusion: the current price offered by the financial provider is not affordable for certain individuals.

Self-exclusion: people may hesitate to apply for a financial product because they believe they would be refused.

1.8 Plan of the Study

There are five chapters in this study and subsections in each of the chapters. Chapter two focuses on the literature review. It shows the theoretical reviews and the conceptual frameworks by various studies. Chapter three deals with the methodology. It presents the type of data, method of data analysis and the methodological framework employed to actualize the objectives of the study. Chapter four presents the results and discussions. The results of regression analysis are discussed in detail, both for the financial inclusion variables (i.e., which include access and use of financial services in study areas) as well as the other explanatory variables. Lastly, chapter five summarizes the major findings, conclusion and recommendations from the study. References and appendices are presented at the end of the last chapter.

CHAPTER TWO

LITERATURE REVIEW

2.1 Review of Theories on Financial Inclusion

2.1.1 Financial inclusion and economic growth

According to the financial inclusion and economic growth theory, financial development enables conditions for economic growth through both a supply (financial development fuels growth) and demand (growth increases the demand for financial products) channel (Dabla-Norris, et al., 2015). Furthermore, a well-developed financial system enlarges access to funds, whereby economic agents have access to their own funds and do not have to knock at the door of informal sources such as moneylenders at high cost. An important attribute of finance also involves the extent to which individuals and firms can have access to financial services such as credit, deposit, payment, insurance and other finance-related services. It is well documented that the lack of financial services restricts the range and scope of entrepreneurial activities of households and firms, especially the small and medium-sized ones. During the 1900s there was the view that if much credit is granted to the public to start new business it will generate more income leading to economic growth and consequently reduce income inequality provided the economic wealth is distributed equally (Adnan, 2011).

2.1.2 Financial inclusion and inequality

With total access to finance, the vulnerable groups can improve their economic situation. According to Karpowicz (2014), dissimilarity in access to finance is identified as a determinant of income inequality. With more people having access to finance the concentration risk of banks reduces and in turn can decrease the intermediation costs enabling the poor to obtain finance at lower costs. Also, as people earn more money, they can at least provide their own basic needs. Honohan (2004) support this view by stating that deep financial systems are linked with lower poverty. Thus, appropriate financial services can ameliorate the welfare for the poor, because of its ability to ensure improvement in the provision of efficient services, creation of saving opportunities and facilitation of capital formation among the poor. In addition, access to finance at formal institution ensures that the lower income groups are safeguarded from informal moneylenders. Hence the need for well-functioning micro credit programmes that can stimulate the poor in increasing their income.

2.1.3 Interdisciplinary theories and financial exclusion

Bearing in mind that financial exclusion is interdisciplinary in nature, there are several approaches that can be applied to understand this topic of interest. An interdisciplinary theory is one that is learned by

insights from more than one discipline which include institutional theory, political economy and poverty-and-community analyses (Buckland. 2012). Each of these theories has been influenced by more than one discipline, consisting of economics, sociology, psychology as well as geography.

Political-economy theories are also useful theories for understanding financial exclusion. These theories refer to the examination of the social world, cognizant of social, state and political structures (Buckland, 2012). This political-economy framework to financial exclusion is important in apprehending the role of bank bifurcation and financialisation in segmentising the most marginal customers in the least advantage services (i.e., with high and complicated fees) (Buckland, 2012).

Other interdisciplinary theories are poverty and community-based analyses, geographic spatial analyses and household economy. Community-based analyses highlight the realities and experiences of the financially excluded by understanding the structures that reinforce inequality and poverty. Results show that low-income consumers usually behave in highly rational ways according to the relative costs and benefits of the variety types of financial services (Buckland and Martin, 2005). With respect to household economy, it allows unpacking of the household especially on its decision making, resource allocation and gender relations. Several studies have provided support for the gender impact on credit inclusion (Kabeer, 2001).

2.2 Conceptual Framework

2.2.1 Financial inclusion and the rural economy

ILO (2015) refers to rural finance as the provision of financial services in rural areas that support a wide range of economic activities and households of various income levels. Rural finance includes financial services that support agricultural as well as non-agricultural activities. In contrast, agricultural finance is the provision of financial services that support all agriculture-related activities, including those of processors, distributors and exporters who may be in rural, urban or peri-urban areas. Microfinance means the provision of small-scale financial services that include savings, insurance, loans (productive, emergency, consumption), leasing products, money transfer services, or guarantees.

2.2.2 Access to finance versus use of finance: voluntary and involuntary exclusion

What distinguishes use of financial services from access to financial services? To what extent is lack of use a problem? World Bank (2009) in Figure 2 illustrates the difference between access to and use of financial services.

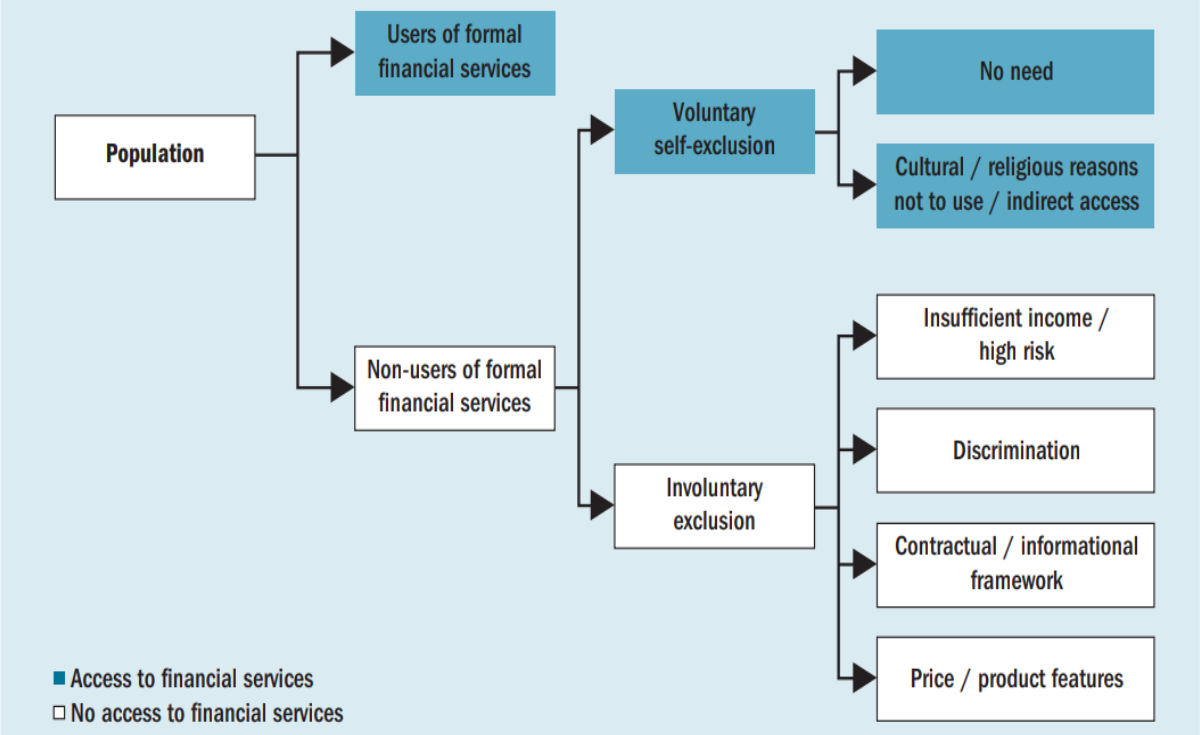


Figure 2: Distinguishing between access to finance and use
Source: The World Bank Research Observer (2009), vol. 24, no. 1 (February 2009)

Users of financial services can be distinguished from non-users, and there are important distinctions among non-users. On the one hand are those who do not use financial services for cultural or religious reasons or because they do not see any need. These non-users include households who prefer to deal in cash and enterprises without any promising investment projects. These nonusers have access, but they choose not to use financial services. From a policymaker's viewpoint, non-users do not really constitute a problem because their lack of demand drives their non-use of financial services. On the other hand, are the involuntarily excluded who, despite demanding financial services, do not have access to them. There are several different groups among the involuntarily excluded. First, there is a group of households and enterprises that are considered un-bankable by commercial financial institutions and markets because they do not have enough income or present too high a lending risk. Second, there might be discrimination against certain population groups based on social, religious, or ethnic grounds (red lining). Third, the contractual and informational framework might prevent financial institutions from reaching out to certain population groups because the outreach is too costly to be commercially viable. Finally, the price of financial services may be too high, or the product features might not be appropriate for certain population groups. While the first group of involuntarily excluded cannot be a target of financial sector policy, the other three groups demand different responses from policymakers.

In addition, Kempson and Whyley (1999) highlighted that there are other causes that exacerbate financial exclusion rather than merely physical access, namely access exclusion, condition exclusion, price exclusion, marketing exclusion and self-exclusion. These new factors are supported and further elaborated by Devlin (2005). By putting the five causes of access difficulties, Kempson and Whyley (1999) broadly define financial exclusion as simply as ―constrained access to the mainstream financial services. As for Devlin (2005), by adding another cause of access difficulty (i.e., resource exclusion), he postulates financial exclusion as "it is all about those with few or no financial services holding".

2.3 Review of the Empirical Studies on Financial Inclusion

Harley et al. (2017) empirically investigated the role of financial inclusion in poverty reduction and economic growth in a developing economy using panel data analysis ranges from 2006 to 2015 within a log linear model specification framework. From their regression result, the numbers of active Automated Teller Machines (ATM), bank branches and government expenditures selected from three Africa countries used in their study were the most robust predictors for financial inclusion on poverty reduction in a developing economy. They discovered that a percent increase on ratio of active ATM will leads to an increase in the gross domestic product and a reduction of poverty in developing economy. However, their indicator shows that most of the ATM in developing economy are obsolete and thus required a technological upgrade to have a significant impact in rural areas. Consequently, their study recommends that Government should focus on poverty reduction through focus on infrastructural development that will enhance banking services.

Similarly, George et al. (2017) examined how variations in social capital across generations promote financial inclusion among the poor in rural Uganda. They collected data from a sample of 200 poor households located in Mukono district of Uganda and performed their analysis using Ordinary Least Square (OLS) regression and Analysis of Variance (ANOVA) to examine how variations in social capital across generations promote financial inclusion of the poor in rural Uganda. Their results generated indicate that variations in social capital components across generations significantly and positively affect financial inclusion of the poor in rural Uganda. They recommend that managers of financial institutions should consider generational values in promoting financial inclusion by specifically designing social financial products and services that can boost collective action in order to promote financial inclusion of the poor, especially in rural Uganda.

Joseph and Varghese (2014) in their study analysed the effect of financial inclusion in the growth of developing nation. They attempt to assess the current status of financial inclusion on the development of Indian economy by analysing five state owned bank groups and five private sector banks. Bank

growth rate in terms of number of bank branches, offsite and onsite ATM, usage of debit card and credit cards were analysed using descriptive statistics for the secondary data mainly collected from reports, newspapers, research articles, research journals, e-Journals, books and magazines for the period under consideration of their study. It was observed from their study that the usage of debit card has increased tremendously throughout the study period and banks focused more on rural and semi-urban areas. They however discovered that the number of people with access to the products and services offered by the banking system continues to be very limited, even years after the introduction of inclusive banking initiatives in the country, such as cooperative movement, nationalisation of banks, and creation of regional rural banks. From their study, they concluded that the financial inclusion contributes much to the development of developing economy and there is further scope for achieving inclusive growth.

Also, Sharma and Kukreja (2013) in their study entitled "Relevance of Financial Inclusion for Developing Nations- an Analytical study" concluded that financial inclusion is the key for inclusive growth. Mere opening of no-frill bank accounts is not the purpose or the end of financial inclusion while formal financial institutions must gain the trust and goodwill of the poor through developing strong linkages with community-based financial ventures and cooperative. Financial inclusion has not yielded the desired results and there is long road ahead but no doubt it is playing a significant role and is working on the positive side.

However, Bagli and Dutta (2012) in their study on "Financial Inclusion in India" constructed a composite index of financial inclusion for each state using a wide range of indicators and found that marginalised groups of population are financially excluded from banking services. Besides, they are not aware of the available banking services; on the other hand, banking officials are not also well aware of the needs and capacity of the people under this section. As a result, banks cannot bring them under the umbrella of financial inclusion. Therefore, the mass financial literacy and awareness among the marginalised sections of people are necessary to achieve financial inclusion. Juxtaposed with this, financial institutions will have to be socially responsible as well as approachable to achieve complete financial inclusion.

Within the framework of institutional theory, Junaidah (2016) in his study explored and analysed the role of financial system as an institutional setting on financial inclusion. In addition, he further investigated the other factors especially the institutional settings in driving financial inclusion. As the aim of his study suggested, the research unveiled the impact of Islamic-based financial system, as well as the other pertinent factors on inclusive financial system. The results of his study revealed that the determinants of financial inclusion, particularly the institutional settings, are heterogeneous across the

whole distribution of countries, consistent with the notion of heterogeneity as purported by Zucker (1987) and further extended the view that heterogeneity only evidenced within the organisational level. His findings demonstrated twofold; firstly, institutional settings are shaped and designed to be consistent with financial inclusion enhancement for both at lower and higher level of financial inclusion. Secondly, the quantile regression that was used in the study does not only further supports financial inclusion is institutionally driven, but more importantly offers renewed insights on the heterogeneity aspect of the institutional theory. He concluded that besides the role of financial system, empirical evidence on the other financial inclusion determinants is relatively lacking and far from being conclusive.

Moreover, Feder and Umali (1993) and Cornejo and McBride (2002) highlight access to credit as a key determinant of adoption of most agricultural innovations. It is believed that access to credit promotes the adoption of risky agricultural technologies through the relaxation of the liquidity constraint as well as through the boosting of household's risk bearing ability. With an option of borrowing, a household can do away with risk reducing, but inefficient income diversification strategies and concentrate on more risky but efficient investments (Eswaran and Kotwal, 1990). In the case of cassava production in Nigeria, credit constraint has been singled out as a major factor militating against adoption of modern cassava production techniques such as herbicides, hybrid cassava stake, insecticides, inorganic fertilizer, tractor, appropriate spacing, planting date and tillage practice (Nweke et al., 2002). Yet, some findings in the literature (Iyanda et al., 2014) have pointed to the immense role of adoption of these technologies in enhancing productivity, poverty eradication and attainment of food security in developing countries like Uganda.

CHAPTER THREE

METHODOLOGY

3.1 Study area

Uganda, officially the Republic of Uganda, is a landlocked country in East-Central Africa. The sovereign state bordered to the east by Kenya, to the north by South Sudan, to the west by the Democratic Republic of the Congo, to the south-west by Rwanda, and to the south by Tanzania. This study focuses on the programme areas of the Project for Financial Inclusion in the Rural Areas (PROFIRA) with specific focus on Busoga Region of Eastern Uganda.

Busoga sub-region is a region in Eastern Uganda, it occupies an area of over 10,000 square kilometres and according to the 2014 national census about 40 percent of the people in the eastern region live in this sub region. Busoga promotes popular participation and unity among the people of the region through development programs to improve their standard of living. Busoga strives for a united people who have economic, social and cultural prosperity. The region comprises eight districts among which Kamuli district is selected for the study location. Busoga is bordered on the north by shallow Lake Kyoga (separating it from Lango), on the west by the Victoria Nile (separating it from Buganda), on the south by Lake Victoria (separating it from Tanzania and Kenya) and on the east by the Mpologoma River. It also includes several islands in Lake Victoria, such as Buvuma Island (Cohen, 1986).

Figure 3: Map of Uganda showing the programme areas
Source: *IFAD, 2016*

3.2 Nature and Sources of Data

The study drawn on the PROFIRA programme areas for data covering demand, access and usage of financial services in the selected communities of Busoga Region at the Eastern Uganda, using primary data. The Primary data was collected with the help of well-structured questionnaire based on the objectives of the study. The target population was the smallholder farmers consisting of the rural women, men and young people who earn income, members of mature community-based savings and credit cooperatives (SACCOs) who have successfully saved and borrowed within their groups.

3.3 Method of Data Collection

Data collection was done through the administration of questionnaire to the smallholder farmers within the stated rural areas. Data was collected based on the specific objectives aligning the research. A multistage sampling technique was employed in the selection of respondents. The first stage comprised the selection of study area which was employed with the use of purposive sampling method. Busoga Region of Eastern Uganda was selected due to the number of SACCOs groups in the region. The second stage involved the selection of communities/ SACCOs groups within the rural areas for the study. This selection was made based on the level of high performing farmer groups within the scheme of PROFIRA. In selecting the various communities/SACCOs groups, purposive sampling was employed. Kasolwe and Mbulamuti SACCOs groups were selected in the district of Kamuli. This was achieved with the records of the groups with PROFIRA. The final stage employed the use of simple random sampling to identify respondents who have benefitted solely from the project for financial inclusion in the rural areas by being a member of the SACCOs group.

3.4 Sampling Method and Sample Size

A simple random sampling method using Yamane (1967) method of selecting sample size as cited in Singh and Masuku (2014) to select number of respondents for this study. Yamane (1967), stated that to determine sample size, three criteria are needed to fulfil, such as the level of precision, the level of confidence or risk and the degree of variability. So, taking this into consideration, total number of respondents were computed using Yamane's formula at the precision level of 5% (standard error) and 95% confidence level.

$$n = \frac{N}{1 + Ne^2}$$

Where n represents sample size, N represents total number of beneficiaries (600) and e is the margin of error (5%).

$$n = \frac{600}{1 + (600)0.05^2}$$

Using the Yamane Formula, n = 240 was selected as sample size. Therefore, a total of 240 participants were selected for this study.

3.5 Analytical Methods/ Techniques

Descriptive and inferential statistics were adopted to determine the level of financial inclusion in the study areas. Frequency analysis, cross tabular analysis, chart presentation, and analysis of variance (ANOVA) were performed through the aid of Statistical Packages for the Social Sciences (SPSS) version 23, while Ordinary Least Square (OLS) regression analysis was performed through the use of E-views to analyse the objectives of the study. The collected data was transcribed in tables and further analysed with the help of a wide range of appropriate statistical technique such as: Mean, Standard Deviation, Chi- Square and coefficient of variance. The data was analysed using suitable parametric statistical technique of tabulation and independent t-stat for the hypothesis testing.

3.5.1 Theoretical Framework and Model Specifications

To evaluate the effect of financial inclusion on smallholder farmers' productivity in the study areas, the theoretical framework for this study is based on the Neo-classical production theory. The Neo-classical production equation express farm productivity as a function of input factors (such as land, labour and capital). However, based on this theoretical framework, the regression model to evaluate the effect of financial inclusion on smallholder farmers' productivity is based on linear OLS regression adopted from Petrick (2016) established on production function. The equation is written as;

$$P = f(K, L, Z) + \varepsilon \ldots\ldots\ldots\ldots\ldots\ldots\ldots equ\ 1$$

Where, 'P' denotes the farmers' productivity level, 'K' represents Capital (financial inclusion in terms of access to finance), 'L' denotes the farm size and labour, 'Z' is a vector of dummies capturing farmers specific characteristics and other inputs. The relation between financial inclusion (access to finance) and productivity is unambiguously positive. The effect of 'L' (farm size) on 'P' (farmers productivity level) depends on the size of the farm size and labour force. A negative sign implies that farm sizes converge overtime, whereas a positive sign implies diverging farm size. 'Z' includes a dummy indicating some farmers' characteristics.

From the equation (1);

- the dependent variable is Productivity, a proxy for quantity of crops produced.
- Independent variables include: Financial inclusion (credit access, usage and quality) in terms of received loan, amount of savings, and quality in terms of duration of loan. Other independent variables are; farmers' income, asset ownership (land ownership), farm size, labour, household size and years of education.

Therefore, the Ordinary Least Square (OLS) regression model to estimate the effects of the financial inclusion as listed above was written in the following form:

$$P = \propto + \beta_1 X_1 + \beta_2 X_2 + \cdots + \beta_n X_n + \mu \ldots\ldots\ldots\ldots equ\ 2$$

From the equation;

P = Dependent variable (Productivity; Quantity of crops produced/ Kilogram),

X's (X_1 to Xn) = Independent variables (Financial inclusion and other socio-economic characteristics) while;

- β_1 to β_n = the coefficients of independent variables
- $\propto$ = the intercept of regression equation
- μ = the error terms

3.5.2 Measurement of variables and a priori expectations

Table 1: Explanatory variables used in the model and expected outcomes

Variables	Measurement and Units	A prior Expectation
Productivity	Quantity of crops produced (kg)	Dependent
Loan Received	Amount of loan received (UGX)	+
Quality of loan	Quality in terms of duration of loan / Months	+
Savings	Amount of savings (UGX)	+
Labour	Number of labours employed	+
Education	Years of education (in years)	+
Household Size	Number of individuals in the household	+
Farm Income	Monthly income (UGX)	+
Farm size	Farm size (Ha)	+
Land Ownership	Dummy =1 if with ownership; 0 if otherwise	+

3.5.3 Hypothesis Testing:

For the test of the hypothesis, Analysis of Variance (ANOVA) was employed to test the significant difference in the financial inclusion of male and female smallholder farmers).

- **ANOVA**: Analysis of variance (ANOVA) is a collection of statistical models used to analyse the differences between group means and their associated procedures such as variation among and between groups. ANOVA provides a statistical test of whether the means of several groups are equal, and therefore generalizes the t-test to the groups.

CHAPTER FOUR
RESULTS AND DISCUSSION

4.1 Socio-demographic Characteristics of the Smallholder Farmers

4.1.1 Distribution of the smallholder farmers based on their gender

Figure 4 presents the gender distribution of the participant smallholder farmers. A total number of 240 smallholder farmers participated in the study. From the pie chart representation, 110 female smallholder farmers responded to the study, representing 46% of the total population. However, the gender distribution shows most of the smallholder farmers in the study area are male farmers having a frequency distribution of 130 farmers representing 54% of the total population. This implies that men engage in farming activities than their female counterpart in the study area.

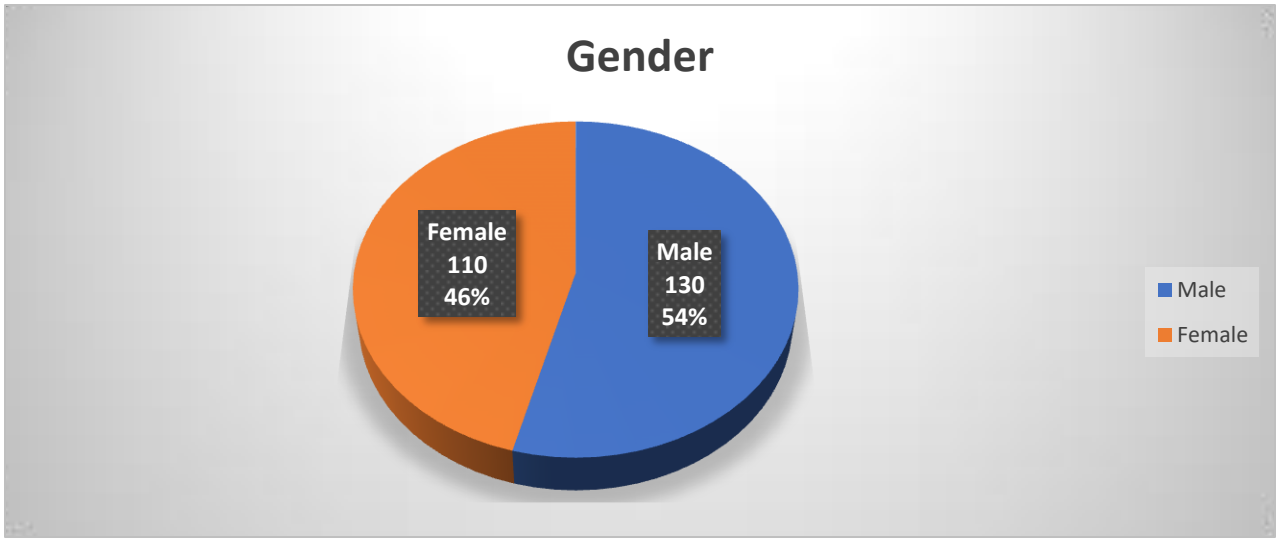


Figure 4: Gender Distribution of the Respondent Farmers
Source: *Field Survey, 2019*

4.1.2 Distribution of the smallholder farmers based on their marital status

The marital status of the respondent smallholder farmers as presented in Figure 5 shows that majority of the smallholder farmers are married. The distribution presents the married smallholder farmers with 49.2% of the total respondents, followed by single and widow smallholder farmers having distribution of 37.9% and 12.9% respectively. This implies that married people are likely to engage in the farming activities than non-married people.

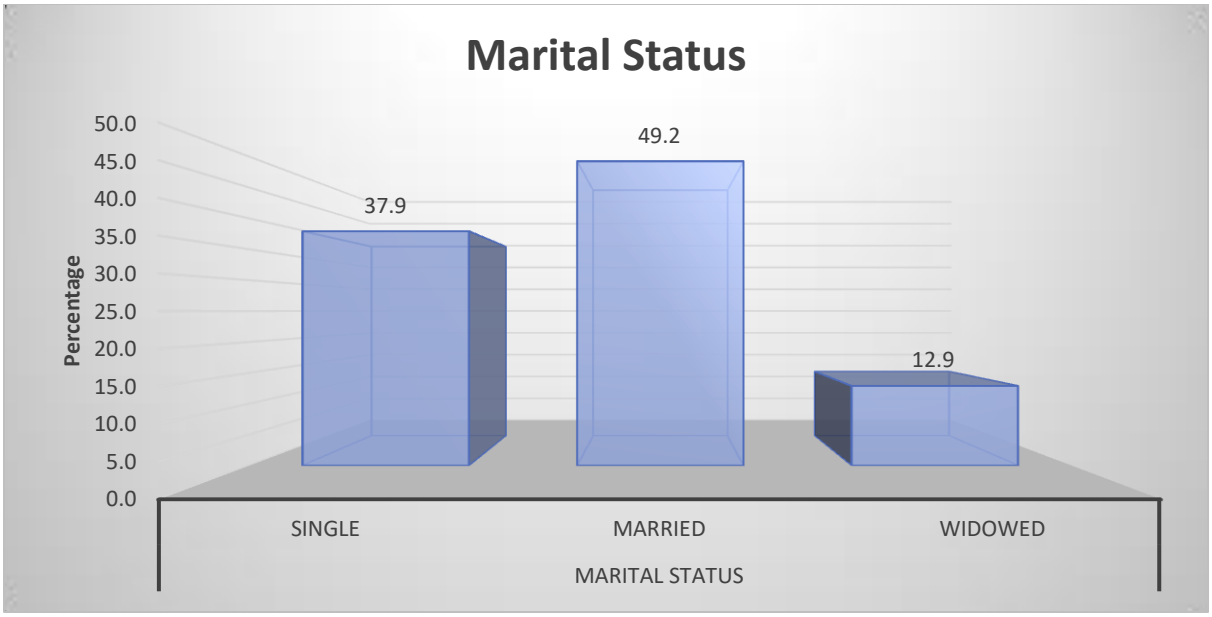


Figure 5: Distribution of the Smallholder Farmers by their Marital Status
Source: *Field Survey, 2019*

4.1.3 Distribution by household head

The pie chart in Figure 6 presents the distribution of the smallholder farmers by the household head. From the Figure, it could be observed that majority of the household head are male smallholder farmers, representing 72% of the total population, while 28% of the household head are female smallholder farmers.

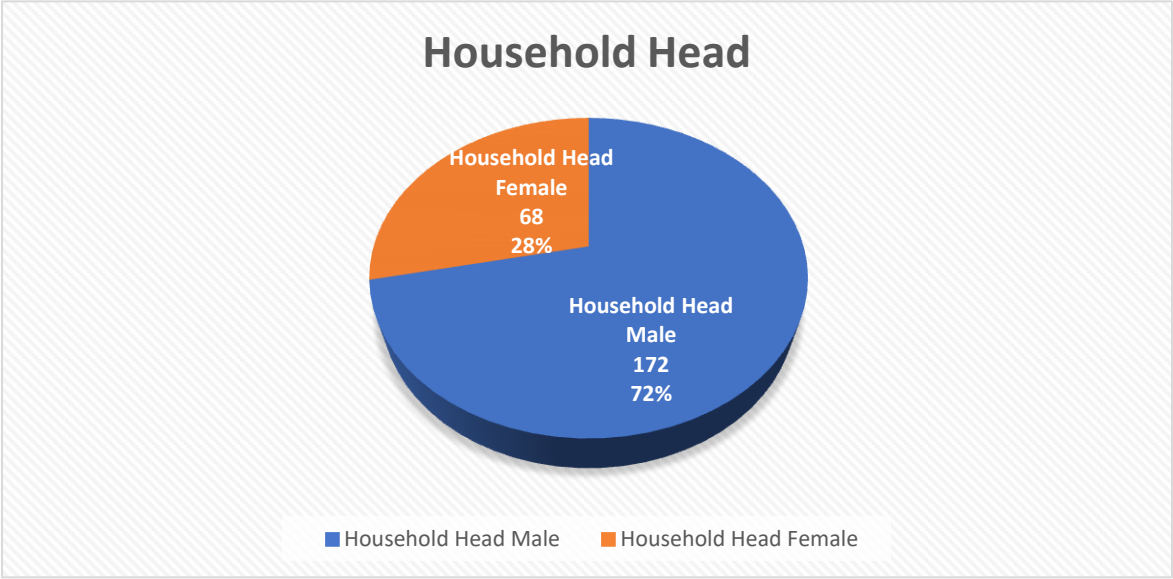


Figure 6: Distribution of the Smallholder Farmers by Household Head
Source: *Field Survey, 2019*

Table 2: Descriptive statistics showing the socio-economic characteristics of the farmers

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Age (years)	240	26	57	38.23	9.902
Years spent in School	240	0	13	6.10	4.733
Household Size	240	3	11	6.34	2.016
Farmland Size (hectares)	240	0.81	4.45	2.28	0.980
Farm Income/ Annual (UGX)	240	1,000,000	12,000,000	5,828,750.00	3303004.607

Source: *Authors' Computation using Field Survey Data (2019)*

Table 4.2 presents the descriptive statistics showing the socio-economic characteristics of the smallholder farmers in the study area. As it could be seen from the descriptive table, the minimum and maximum age distribution of the farmers in the Busoga region of Eastern Uganda are 26 years and 57 years respectively. With the mean statistic of about 38.23 years, and standard deviation of 9.902, this implies that, on average, the age distribution of smallholder farmers in the study area is 38 years. The implication of this is that many young people engage in smallholder farming activities. However, the average number of years spent in school by the smallholder farmers is about 6 years as indicated by the mean of years spent in school. This implies that while many of the smallholder farmers attained primary education, majority do not have higher education. However, some of the smallholder farmers do not even have any primary education at all (min = 0 years). The household size shows a minimum and maximum household members being 3 and 11 respectively. On average, the household of a smallholder farmer comprises of about 6 individuals. The farmland size of the smallholder farmers in the study area is between one to four hectares of land, with average farmland size of about two hectares. Moreover, the minimum farm income per annual is 1,000,000 UGX, while the maximum is 12,000,000 UGX. On average, a smallholder farmer gets about 5,828,750 UGX as farm income annually.

4.2 Level of Financial Inclusion of the Smallholder Farmers

4.2.1 Sources of credit/ financial services by the smallholder farmers

While the total 240 participant smallholder farmers confirmed that they have access to financial services/ credit facilities being a member of credit group, Figure 7 shows that majority (92.5%) get access to financial services from the Savings and Credit Cooperative Society (SACCOS), 64.2% from cooperative banks and 9.2% from NGOs.

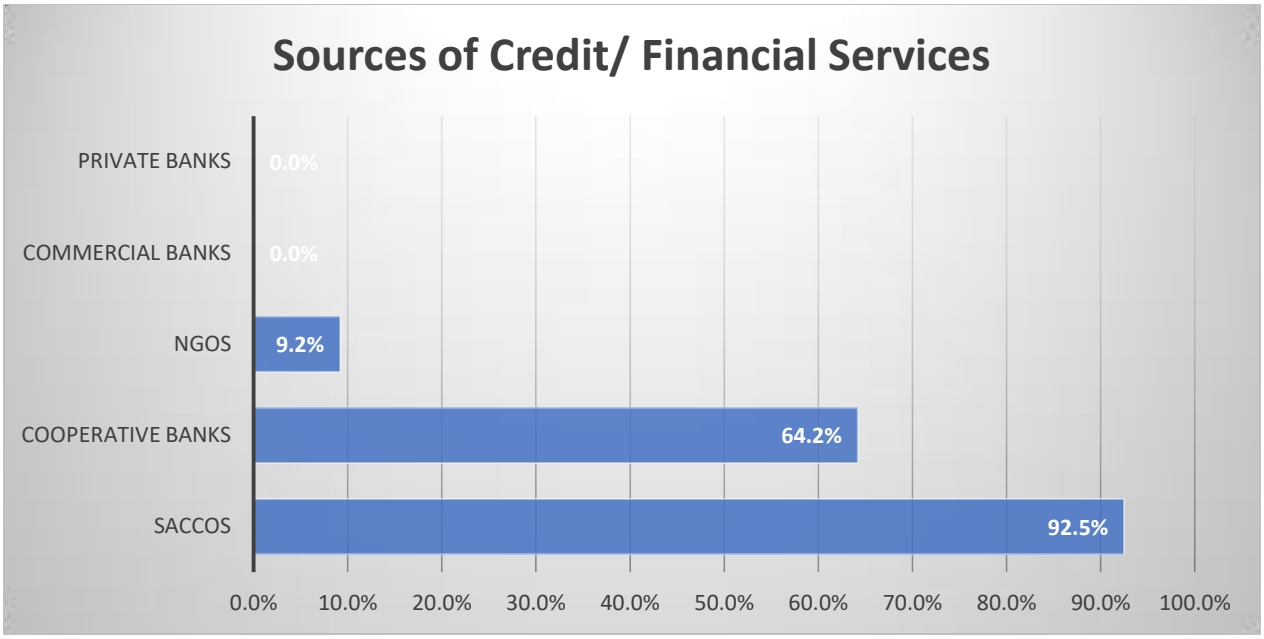


Figure 7: Sources of Credit/ Financial Services
Source: *Field survey, 2019*

4.2.2 Ownership of bank account by the smallholder farmers

Figure 8 presents the smallholder farmers with the bank account. As depicted by the Figure, majority (93%) of these smallholder farmers do not have bank account due to unavailability of banking services in the rural Busoga region of Eastern Uganda. The implication of this is that, while majority do not have any bank account, they however enjoy financial services by being a member of SACCOs where they have access to credit facilities.

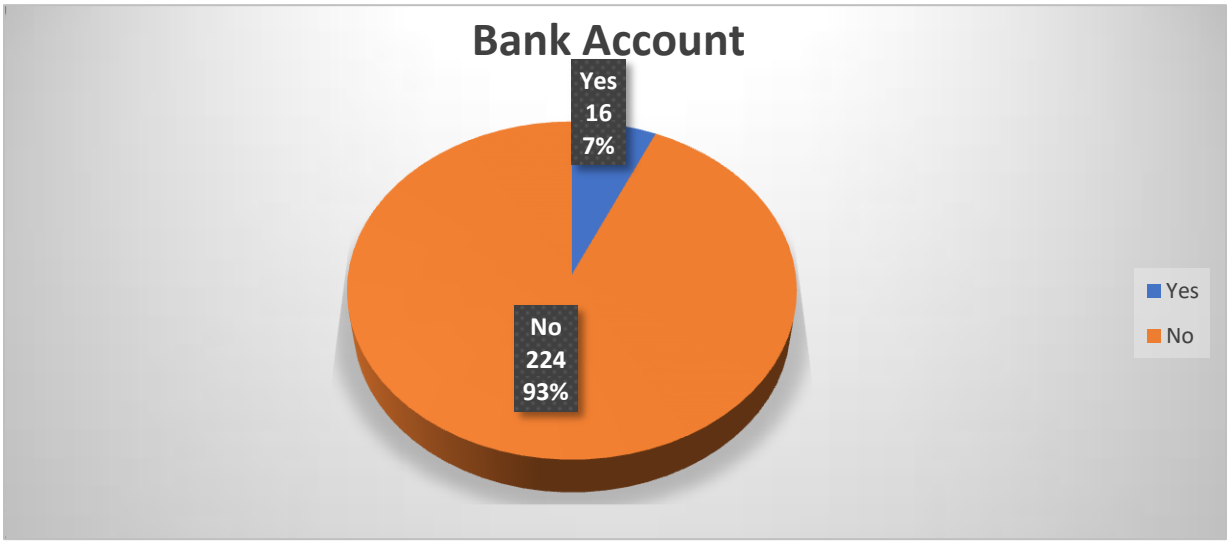


Figure 8: Smallholder Farmers with Bank Account
Source: *Field survey, 2019*

4.2.3 Monthly activities of the Smallholder farmers with the SACCOs

Table 3: Monthly activities of the Smallholder farmers with the SACCOs

	Once in a month	Twice in a month	Thrice in a month	More than three times
How often you visit the SACCO in a month	56 (23.3)	28 (11.7)	42 (17.5)	114 (47.5)
How often do you save in the SACCO	- -	46 (19.2)	58 (24.2)	136 (56.7)

* Percentage (%) are in the Parentheses

Source: *Authors' Computation using Field Survey Data (2019)*

Table 3 shows the monthly activities of the smallholder farmers in their SACCOs group. Majority (47.5%) of the respondent smallholder farmers visit the SACCOs group more than three times a month. This explains the fact that they attend SACCOs meeting every week of the month. However, 56.7% of the total respondents also save in the SACCOs group more than three times in a month. This implies that majority ensure that they contribute by saving in the group every week of the month.

Table 4: Descriptive statistic showing the saving amount/month and distance to SACCOs

	N	Minimum	Maximum	Mean	Std. Deviation
Amount Save in SACCOs (UGX)	240	100,000	350,000	219,333.33	80881.476
How far is the SACCO from your house (Kilometres)	240	1	5	2.98	1.417

Source: Authors' Computation using Field Survey Data (2019)

Table 4 presents the descriptive statistics of the smallholder farmers saving amount in a month in their SACCOs group, and the average distance in kilometres of the SACCOs to their homes. From the Table, the minimum and maximum amount saved per month is 100,000 UGX and 350,000 UGX respectively. On average, a smallholder farmer will save about 219,333 UGX in a month. However, the distance in kilometres from the SACCOs meeting group and farmers house is approximately 3 kilometres on average. This implies that SACCOs groups are easily accessible in terms of distance to the smallholder farmers.

4.2.4 Type of loan/services smallholder farmers obtain from SACCOs group

The participant smallholder farmers were asked about the type of loan they get from their SACCOs group. As shown on the Figure 9, all the respondents smallholder farmers get agricultural loan from their SACCOs group while 58.3% also get loan for business purposes from SACCOs. No smallholder

farmers got loan for consumption or housing. This implies that agricultural loan and business loan are the major loan available for the smallholder farmers in the study area.

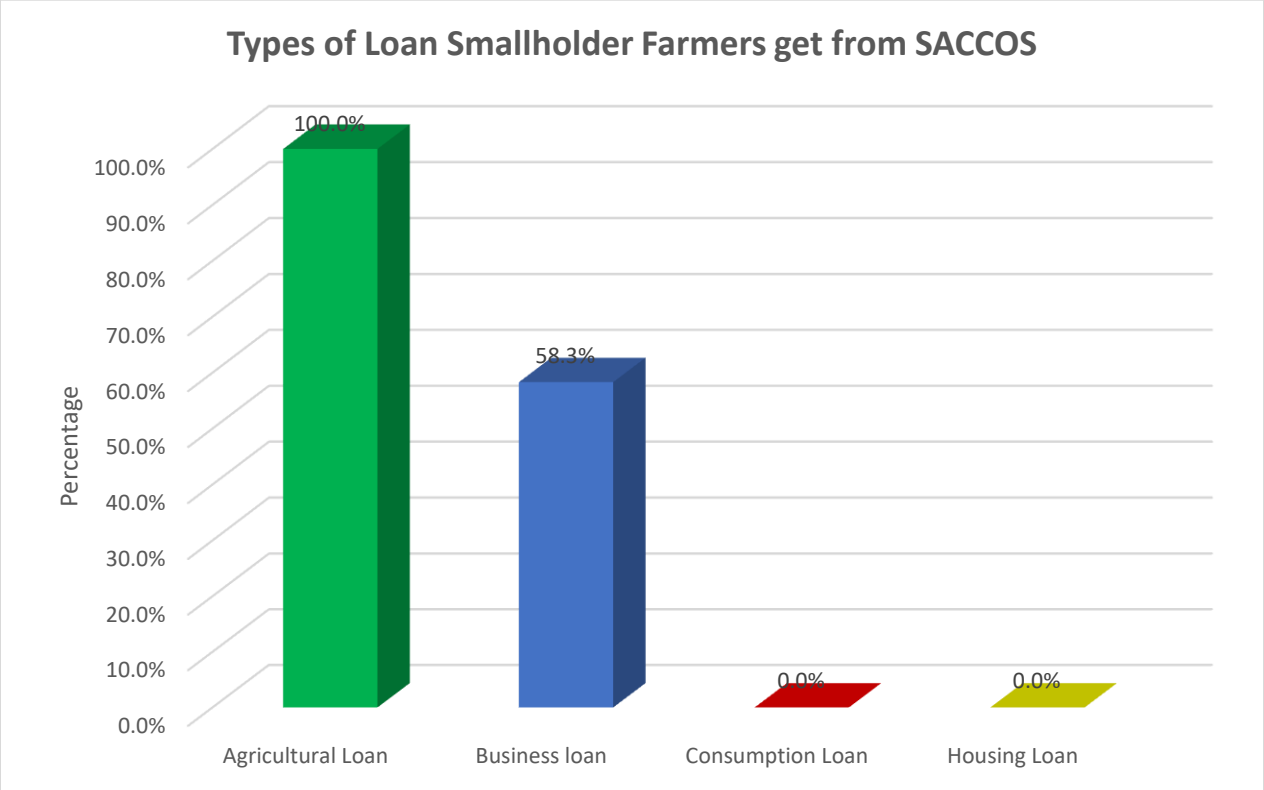


Figure 9: Type of loan obtain from SACCOs
Source: *Field survey, 2019*

4.2.5 Other services smallholder farmers enjoy from SACCOs group apart from credit facilities

Figure 10 presents the other services enjoy by the smallholder farmers from their SACCOs group apart from credit facilities. From the Figure, it could be observed that there are many other services such as education, financial literacy saving and banking services the smallholder farmers can get from their savings and credit co-operative societies. 41% of the participant farmers agreed that they enjoy education services from their SACCOs group. Followed by this are 39% of the smallholder farmers who also enjoy financial literacy from their SACCOs group. Saving and banking services are also being enjoyed by the members of savings and credit co-operative society. The implication of this is that, while SACCOs group provide credit and financial services for their members, they also educate smallholder farmers on how to manage their finances.

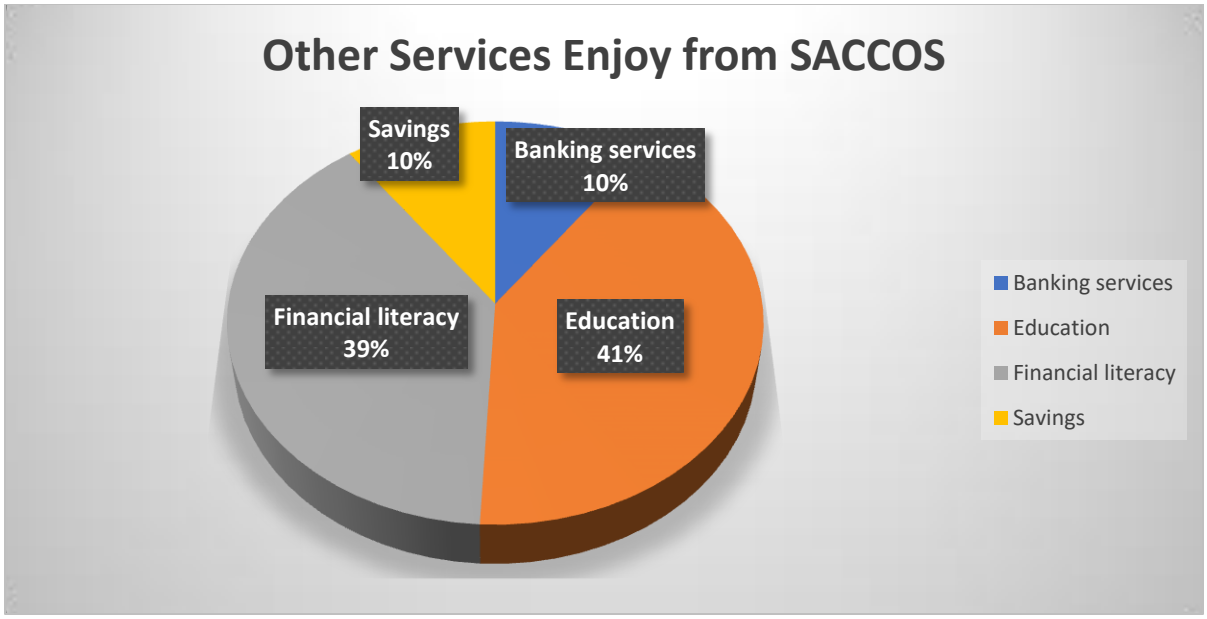


Figure 10: Other services enjoy from SACCOs
***Source**: Field survey, 2019*

4.2.6 Accessibility and affordability of financial services to the smallholder farmers

Table 5: Accessibility and affordability of financial services to the smallholder farmers

	Yes		No	
	F	**%**	**F**	**%**
Have you ever tried/taken loan from the SACCOs?	192	80	48	20
Do you face any problem why obtaining loan/credit?	4	1.7	236	98.3
Were you denied while obtaining the loan/credit?	4	1.7	236	98.3
Can you say financial services are easily available for you?	208	86.7	32	13.3
Can you say credit and financial services are affordable?	208	86.7	32	13.3
Can you say the quality of financial services you receive is good?	208	86.7	32	13.3

***Source:** Authors' Computation using Field Survey Data (2019)*

On the level of availability and accessibility of financial services by the smallholder farmers in the study area, Table 5 shows that majority (80%) of the participant smallholder farmers have ever tried/taken loan from their savings and credit co-operative society, while only 1.7% of the participants farmers face problem why obtaining loan/credit and were denied the credit. This shows that majority (98.3%) of the smallholder farmers in the study area do not face any problem why obtaining loan/credit. This further explain the accessibility of the financial services through SACCOs group to the smallholder farmers in the study area. However, 86.7% of the participant smallholder farmers confirmed that the credit and financial services they receive are affordable and very good. This implies

that majority of the smallholder farmers in the Busoga region of Eastern Uganda who are members of the savings and credit co-operative are financially included.

4.3 Savings and Credit Cooperatives (SACCOS) Groups

4.3.1 Information on the membership of the savings and credit cooperatives society

Figure 11 presents information on smallholder farmers membership of the savings and credit cooperatives society. All the participant farmers are member of the savings and credit cooperatives society, and all the farmers have applied for credit since they joined cooperative society. Majority (98.3%) affirmed that they were not denied the credit. Only 7.7% of the farmers were affected by collateral while obtaining the loan. All the smallholder farmers confirmed that their turnover determine their loan repayment while 82.5% affirmed that losses affect their repayment ability. However, majority 76.8% of the smallholder farmers get exact amount they requested for as loan. The implication of this is that being a member of savings and credit cooperatives (SACCOS) groups, collateral do not majorly have effects on the ability to obtaining loan by the smallholder farmers, while majority get exact amount of loan they request for. However, low productivity and losses affects their loan repayment ability.

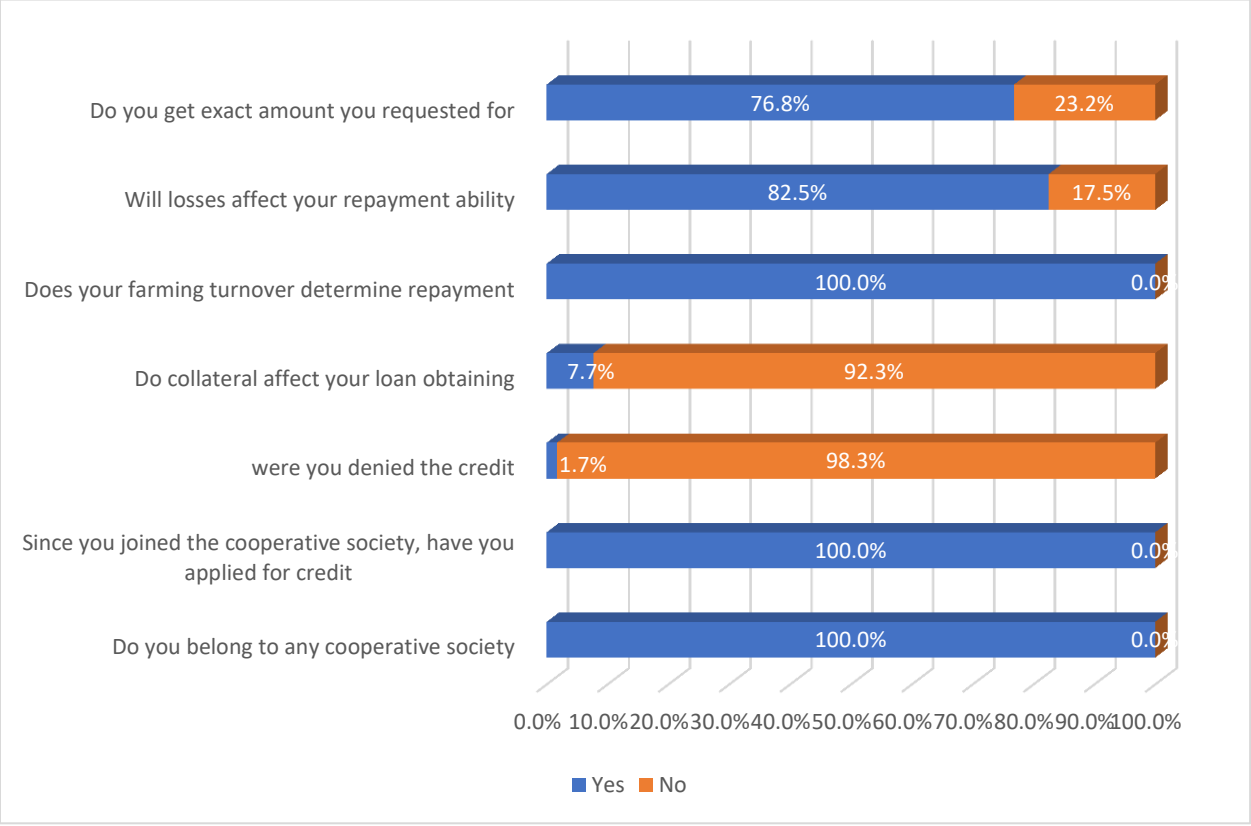


Figure 11: Information on savings and credit cooperatives (SACCOS) groups
***Source**: Field survey, 2019*

4.3.2 Credit information of the SACCOs member

Table 6: Descriptive statistic showing the credit information of the SACCOs member

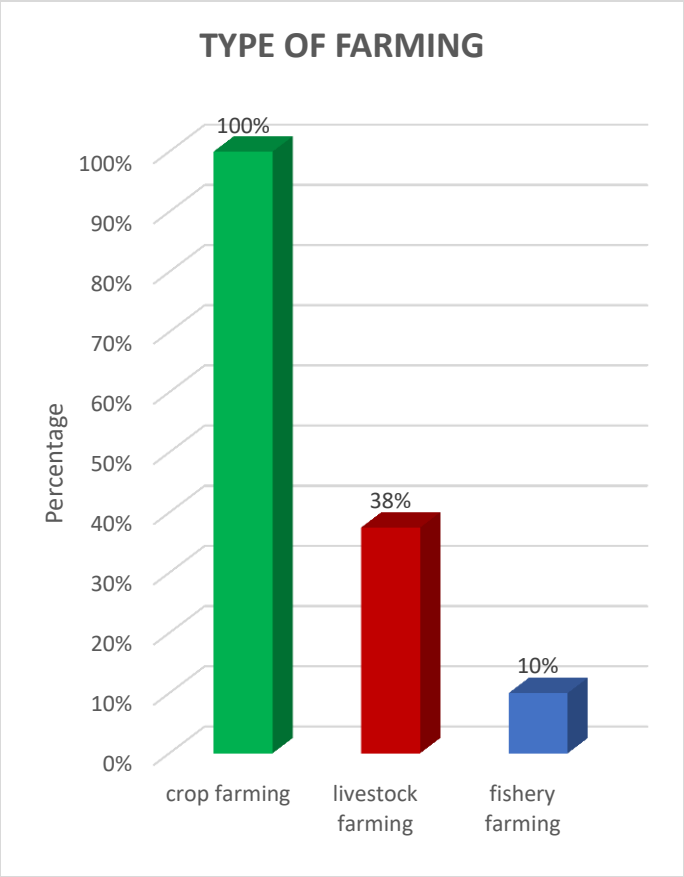
	N	Minimum	Maximum	Mean	Std. Deviation
Waiting days between application and disbursement of credit	240	3	7	5.27	1.657
Duration of the credit (Month)	240	4	12	8.99	2.899
How often do you borrow in a year	240	2	5	3.08	0.895

***Source**: Authors' Computation using Field Survey Data (2019)*

Table 6 presents the descriptive statistic showing the credit information of the SACCOs member. On average, the waiting days between application and disbursement of credit is about 5 working days, while the minimum and maximum waiting days are 3 and 7 days respectively. This implies that smallholder farmers get the credit disbursement within a week of the application. Also, the average duration of credit as shown by the mean value is 8.99. This implies that smallholder farmers enjoy the credit they obtain for average period of about nine months, while the minimum and maximum credit duration is 4 and 12 months respectively. However, smallholder farmers can obtain loan for up to 3 times a year.

4.4 Productivity of the Smallholder Farmers

All the participant farmers for this study are smallholder farmers with majority (100%) into crop farming, while only 38% and 10% are into livestock and fishery farming respectively as indicated on the Figure 12. This implies that smallholder farmers in the Busoga region of Eastern Uganda do not only practices arable agriculture but also practices other types of farming such as pastoral and mixed farming. However, (83%) of the smallholder farmers own the land they are using for farming, while only 17% rent the land for their agricultural purpose (figure 13).



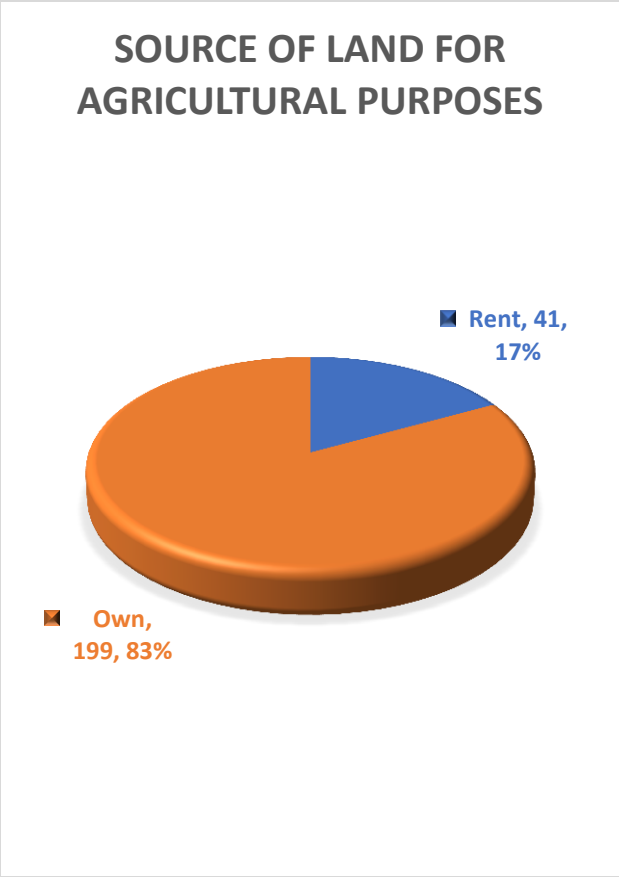


Figure 12: Type of farming practices

Figure 13: Source of land for agricultural purposes

Table 7: Descriptive statistic showing the crop productivity of the smallholder farmers

Crop	Quantity Produced (kg)		Quantity Sold (kg)		Quantity Consumed (kg)		Price/kg (UGX)	
	Mean	Std. Deviation	Mean	Std. Deviation	Mean	Std. Deviation	Mean	Std. Deviation
Maize	877.92	323.248	665.42	297.148	132.85	60.968	1347.92	730.962
Beans	423.75	83.205	324.58	25.049	185.96	23.765	2358.33	407.479
Cassava	4814.58	5838.123	1295.83	393.864	200	70.265	1464.58	929.41
Banana	23000	10792.838	21078.21	10787.537	1994.41	356.476	4639.58	578.173

***Source**: Authors' Computation using Field Survey Data (2019)*

4.4.1 Smallholder farmers crop production, sales and consumption

Table 7 presents the type of crops, quantity produced, consumed and sold per kilogram (kg) in the last farming season by the participant smallholder farmers in the Busoga region of Eastern Uganda. As indicated by the mean distribution, a farmer who planted maize crop for instance harvested about 877.92 kg of maize in the last farming season, out of which they consumed about 132.85 kg and sold about 665.42 kg at a market price of about 1,347.92 UGX per kg. This implies that in the last farming season, on average, a smallholder farmer realized about 896,932.93 UGX on maize crop alone in the last farming season at the Busoga region of Eastern Uganda. This is a high turnover for the smallholder farmers who are beneficiaries of the financial inclusion in the study area. It should however be noted that majority of these smallholder farmers do not produced only one type of crop annually, majority practices mixed farming and some have different hectares of land for different crops. Also, the fact that these farmers were able to sell out of what they produced after quantity consumed by their family suggest that they are not just practicing subsistence farming but commercial farming which suggest the reason for their high annual farm income. In Uganda, banana, maize, beans, and cassava are the staple food crops grown primarily for home consumption, and they are commonly intercropped.

4.5 Effect of Financial Inclusion on the Productivity of the Smallholder Farmers

In order to examine the effects of financial inclusion on the smallholder farmers' productivity in the Busoga region of Eastern Uganda, total quantity of crops produced by the farmer was expressed as a function of financial inclusion as stated in the theoretical framework in the chapter three. The variables which made up the indicators for the financial inclusion of the smallholder farmers are in terms of loan received, quality in terms of duration of loan, and amount of savings. Other variables are; farmers' income, asset ownership (land ownership), farm size, labour, household size and years of education. All these variables are called independents variables while smallholder farmers' crops productivity is a dependent variable. The results of the linear regression analysis using Ordinary Least Square (OLS) method are presented in Table 8.

The results from Table 8 show the impact of financial inclusion and other socio-economic characteristics of the smallholder farmers on their crops productivity. From the Table, coefficient of loan amount, loan duration and farmers' savings were 0.316, 0.426 and 0.471 respectively. This indicated a positive relationship between quantity of crops productivity and financial inclusion of the smallholder farmers. The coefficient values suggest that an increase of a million Uganda Shilling (UGX) in the loan amount made available to the farmers leads to about 31% increase in the crops' productivity. Similarly, a year extension of the loan duration will lead to about 42% increase in their

productivity. And finally, an increase of a million Uganda Shilling (UGX) in their savings will lead to about 47% in crops' productivity. This is because the more a farmer saves in their SACCOS group, the more access they have to more loans.

However, the estimation results show that the variables- loan amount, loan duration and farmers' savings are statistically significant in explaining changes in farmers productivity ($p < 0.05$). Thus, the statement of a significant linear relationship between productivity of the smallholder farmers and their financial inclusion is validated. In examining the relationship between each of the other independent variables (socio-economic characteristics of the smallholder farmers) and quantity of crops produced, it could be observed that the coefficients for farm income, farm size, amount of labour, household size and years of education had a positive and significant relationship with farmers productivity. This suggests that an increase in any of the variables will significantly have positive effects on the farmers productivity.

Table 8: **Regression Result**

Dependent Variable: CROPS PRODUCED
Method: Least Squares
Date: 02/06/20 Time: 12:13
Sample: 1 240
Included observations: 207

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	11.17471	0.709608	15.74773	0.0000
LOAN_AMOUNT	0.315701	0.043662	7.230631	0.0000
LOAN_DURATION	0.425998	0.055170	7.721562	0.0000
EDUCATION	0.133538	0.052067	2.564742	0.0111
FARM_INCOME	0.205548	0.096045	2.140115	0.0336
HOUSEHOLD_SIZE	0.110249	0.049554	2.224824	0.0272
LABOUR	0.674582	0.145327	4.641813	0.0000
FARM_SIZE	1.275470	0.116514	10.94694	0.0000
SAVINGS	0.471072	0.101922	4.621880	0.0000

R-squared	0.600524	Mean dependent var	4.752174
Adjusted R-squared	0.584384	S.D. dependent var	1.017651
S.E. of regression	0.656063	Akaike info criterion	2.037384
Sum squared resid	85.22283	Schwarz criterion	2.182285
Log likelihood	-201.8693	Hannan-Quinn criter.	2.095981
F-statistic	37.20616	Durbin-Watson stat	1.864529
Prob(F-statistic)	0.000000		

***Source**: Authors' Estimation using Field Survey Data (2019)*

The result shows that the adjusted R-squared value of 0.601, which implies that the explanatory variables jointly account for approximately 60 percentage changes in farmers' productivity. This means that all the independent variables explained about 60% of the systematic variations in quantity of crops produced by the smallholder farmers. The Durbin Watson (Durbin-Watson stat of 1.865) test of serial correlation indicates absence of serial correlation.

4.6 Testing of the Research Hypothesis

The hypothesis for this study stated that male smallholder farmers who are members of savings and credit co-operative society will report significantly high financial inclusion than female smallholder farmers who are members of savings and credit co-operative society in the Busoga Region of Eastern Uganda. The hypothesis was tested with Independent sample t-test. This is presented in Table 9.

Table 9: Summary table of independent sample t-test showing the analysis of the hypothesis

Variable	**Gender**	**N**	**Mean**	**Std**	**Df**	**t-value**	**Sig**
	Male	130	1.08	.268			
Financial Inclusion					238	1.315	>.05
	Female	110	1.04	.188			

Source: *Authors' Estimation using Field Survey Data (2019)*

Table 9 shows that there is no significant difference between the financial inclusion of the male and female smallholder farmers who are members of the savings and credit co-operative societies in the Busoga Region of Eastern Uganda [t (238) = 1.315, p >.05]. From the Table 9, male smallholder farmers had a mean score of 1.08 on financial inclusion, while female smallholder farmers had a mean score of 1.04 financial inclusion. Therefore, the null hypothesis which stated that there is no significant difference in the financial inclusion of male and female smallholder farmers in the study area was confirmed. This is as a result of both men and women in the study area and have equal access to financial services being members of Savings and Credit Co-operative societies (SACCOs).

CHAPTER FIVE
SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 Summary

Financial inclusion plays a critical part in the productivity of smallholder farmers. Inclusive financial services allow rural smallholder farmers to insure themselves against the many economic, social and environmental vulnerabilities they face—from illness and accidents to theft and unemployment, food insecurity and climate change. This is to say it enables smallholder farmers to save and to borrow—allowing them to build their assets, adopt new farming technology, to invest in agricultural mechanisation, to build resilience and mitigate against any shocks or stresses and thus to improve their farm productivity. In this case, access to financial services is likely to benefit disadvantaged groups such as women, youth, and rural communities since they are the ones that are most affected by the economic, social and environmental vulnerabilities.

On the other hand, agricultural finance is the provision of financial services that support all agriculture-related activities, including those of processors, distributors and exporters who may be in rural, urban or peri-urban areas. However, the importance of the microfinance in the rural areas is the provision of small-scale financial services that include savings, insurance, loans (productive, emergency, consumption), leasing products, money transfer services, or guarantees. Since the banking services such as that of the microfinance is not available in the rural areas as a results of many constraints previously explained in this study, the objective of the Project for Financial Inclusion in the Rural Areas (PROFIRA) by the International Fund for Agricultural Development (IFAD) is therefore to sustainably increase access to, and use of, financial services by the rural population in the target areas of Uganda.

Therefore, this study seeks to assess the impact of financial inclusion on the productivity of smallholder farmers in the rural areas, using Busoga region of Eastern Uganda as the case study. The methodology adopted for the study was based on the agriculture productivity function which expressed farm productivity as a function of land, labour and capital. Therefore, the study expressed smallholder farmers productivity as the function of financial services they received, such as amount of loan received, duration of loan and savings amount, with other socio-economic characteristics of the small holder farmers such as farm income, farm size and labour employed. This is simply because the ownership/size of land, and the choice of labour employed for agricultural productivity largely hang on the access and availability of capital for the agricultural activities. However, the availability of

capital for the agricultural activities depend on the provision of financial services in rural areas that support a wide range of agricultural activities and the smallholder farmers at all levels.

5.2 Conclusion

The results from the study show that smallholder farmers who are members of the community-based savings and credit co-operatives societies (SACCOs) have access to financial services such as loan, credit and savings. These smallholder farmers do not have bank account due to unavailability of banking services in the rural Busoga region of Eastern Uganda. This suggests that while rural people do not have any banking services or financial institution, they however enjoy financial services by being a member of the community-based savings and credit co-operatives societies (SACCOs) where they have access to loan/credit facilities. In the rural area, the results from the study show that smallholder farmers do enjoy other services such as education and financial literacy by being a member of community-based savings and credit cooperatives (SACCOs). This suggests that financial inclusion of the rural smallholder farmers do not only increase their productivity, but also have impact on their livelihoods. However, most of these smallholder farmers are mainly interested in the agricultural loan to boost their agricultural productivity. On the level of availability and accessibility of financial services provided by their SACCOs group, the smallholder farmers confirmed that services they enjoy are affordable and always available for them to access. This is as a result of SACCOs groups being run by themselves at their community level, with non-barrier to their accessibility as many of the smallholder farmers do no need collateral or guarantor before they can get loan/credit being a member of the saving group.

Moreover, being a member of the community-based savings and credit cooperatives (SACCOs), there is no significant difference in the credit accessibility of both male and female members. This conclude that through project for financial inclusion in the rural areas, there is no discrimination to financial inclusion of rural women who are members of the group, as they have equal access to financial services like their male counterparts who are members of the group. It is evident from the results that there exist a positive and significant relationship between financial inclusion and the productivity of the smallholder farmers in the Busoga region of Eastern Uganda. Therefore, this study has established financial inclusion as an important driver of smallholder farmers' productivity.

5.3 Recommendations

In order to improve the productivity of the smallholder farmers, this study recommends that community-based savings and credit cooperatives (SACCOs) group should be assisted and backed up by the stakeholders (Governments, International Organizations and NGOs) by officially recognizing

them as group under financial institution dedicated to improving smallholder farmers productivity. Also, stakeholders should strengthen the information dissemination to smallholder farmers on the usefulness and benefits of joining and establishing the SACCOs group in their community where there is no availability of banking services. This is important in the rural areas because access to financial services has a significant effect on the productivity of smallholder farmers. Strategy to encourage financial education should also be developed to draw the attention of the entire rural population to fundamentals of the value of money, the knowledge of financial institutions, and the proper use of credit.

This study also recommends to the smallholder farmers to take an interest in the services offered by their community-based savings group, ensure timely repayment of credit/loan obtained, and frequent contribution to the group, since the more their savings, the more access to credit facilities. It is essential for the beneficiaries of the SACCOs groups to repay their loan/ credit on time if they wish to continue to benefit from the services of the group by not denying others the same benefit because being a good payer is a mark of confidence and credibility. Since turnover and losses affects farmers' loan/ credit repayment ability, smallholder farmers should adopt the proper use of chemicals and organic products as these fertilizers also have significant and positive effects on their productivity. And finally, smallholder farmers should put into use the loan/credit obtained for its purpose.

REFERENCES

Adnan, N. (2011). Measurement of Financial Development: A Fresh Approach. Qatar: 8th International Conference on Islamic Economics and Finance.

Alliance for Financial Inclusion (AFI) (2013). "Defining and Measuring Financial Inclusion". In Musa M. L., and Annet A. (2016). "A Pathway to Financial Inclusion Mobile Money and Individual Savings in Uganda". Economic Policy Research Centre (EPRC) 2016.Research Series.

Bagli Supravat, Dutta Papita (2012). "A Study of Financial Inclusion in India". A Journal of Radix International Educational and Research Consortium, Volume 1, Issue 8,

Bank of Uganda (2013). "Bank of Uganda Financial Inclusion Project Strategy Paper on Financial Inclusion", Bank of Uganda.

Beck T., Demirgüç-Kunt A., Levine R. (2004). "Finance, Inequality and Poverty". Cross country evidence

Chakravarty, Satya R., and Rupayan Pal (2010) "Measuring Financial Inclusion: An Axiomatic Approach", Working Paper - 2010-003, Indira Gandhi Institute of Development Research, Mumbai, March.

Cohen, David William (1986). Towards a reconstructed past: Historical texts from Busoga, Uganda. (Fontes historiae africanae). Oxford: Oxford University Press.

Dabla-Norris, E., Ji, Y., Townsend, R., and Unsal, F. (2015). Identifying Constraints to Financial Inclusion and Their Impact on GDP and Inequality: A Structural Framework for Policy. D.C. Washington: International Monetary Fund.

DFID Uganda (2012). "Uganda Financial Services Inclusion Programme". April 2012

Donovan K. (2012). "Mobile Money for Financial Inclusion". In T. Kelly (Ed.), Information and communication for development, Washington, DC World Bank61-74.

FAO/IFAD/Ford Foundation Rural Finance Research Conference, Conference Proceedings, International Conference on Rural Finance Research, 19th-21st March 2007(Rome2007)

George O. C., John C. M., Joseph N. M. and Charles M. A. (2017). "Financial inclusion in rural Uganda: The role of Social capital and generational values". Banking and Finance Research Article, Cogent Business & Management (2017), 41302866

Harley T. W., Adetoso J. A., and Adegbola D. (2017). "Role of Financial Inclusion in Economic Growth and Poverty Reduction in a Developing Economy". Internal Journal of Research in Economics and Social Sciences (IJRESS) Vol. 7 Issue 5, May- 2017, pp. 265~271.

Honohan, P. (2004). Financial Development, Growth and Poverty: How close are the links? Washington, DC: World Bank.

IFAD (2016). "Rural finance Sustainable and inclusive financing for rural transformation". Inclusive Rural Financial Services Policy and Technical Advisory Division IFAD. www.ifad.org/topic/overview/tags/rural_finance

ILO (2008) Building Financial Capability for the Vulnerable Households: A Manual for Individual Training / Counselling Session Moldova

ILO (2015), Developing the Rural Economy through Financial Inclusion: The Role of Access to Finance. Decent work in the rural economy policy guidance notes.

Joseph J., and Varghese T. (2014). "Role of Financial Inclusion in the Development of IndianEconomy". Journal of Economics and Sustainable Development. ISSN 2222-1700(Paper) ISSN 2222-2855 (Online). Vol.5, No.11, 2014

Karpowicz, I. (2014). Financial Inclusion, Growth and Inequality: A Model Application to Colombia. Washington D.C.: International Monetary Fund.

Mehrotra, A., and Yetman, J. (2015). Financial inclusion-Issues for central banks. Bank for International Settlements

Musa M. L., and Annet A. (2016). "A Pathway to Financial Inclusion Mobile Money and Individual Savings in Uganda". Economic Policy Research Centre 2016. Research Series No.127

Nagarajan, G. and Meyer, R. (2006). "Rural Finance Today," in Finance for the Poor, Vol. 7 No.4

Nuwagaba A. (2012). "Savings and Credit Cooperative Societies (SACCOS) As a Source of Financing Agriculture. Challenges and Lessons Learnt". Journal of Environment and Earth Science. ISSN 2224-3216 (Paper) ISSN 2225-0948 (Online). Vol 2, No.11, 2012

Project for Financial Inclusion in Rural Areas (PROFIRA) 2017. "Supervision report Missiondates:6-17 November 2017". East and Southern Africa Division Programme Management Department, IFAD, Republic of Uganda.

Roa Jose, M. (2015). Financial Inclusion in Latin America and the Caribbean: Access, Usage andQuality.1-42. Central Bank for Latin American Monetary Studies

Serrao, Manohar and Sequeira, A.H. and Hans, Vedamani. (2012). Designing a Methodology to Investigate Accessibility and Impact of Financial Inclusion. SSRN Electronic Journal. 10.2139/ssrn.2025521.

Sharma Anupama, Kukreja Sumita (2013). "An Analytical Study Relevance of Financial Inclusion for Developing Nations". International Journal of Engineering and ScienceISSN2278 4721 Vol. 2, Issue 6, Pp 15-20.

Sharma R. K., Jain V., and Gupta S. (2014). “Financial Inclusion in Rural Oman: A Demand and Supply Analysis”. International Journal of Management and International Business Studies. ISSN 2277-3177 Volume 4, Number 3 (2014), pp. 285-296

Singh, Ajay S and Masuku, Micah B (2014). “Sampling techniques & determination of sample size in applied statistics research: an overview”. International Journal of Economics, Commerce and Management, United Kingdom. Vol. II, Issue 11, Nov 2014. ISSN 2348 0386

World Bank (2009). The World Bank Research Observer (2009), vol. 24, no. 1 (February 2009).

World Bank (2012). The Little Data Book on Financial Inclusion 2012. Washington, DC. © World Bank. https://openknowledge.worldbank.org/handle/10986/12253 License: CC BY 3.0 IGO

World Bank (2014), Financial Inclusions. Global Financial Development Report. Page 1- 105.

Yamane, Taro. (1967): Statistics: An Introductory Analysis, 2nd Ed., New York: Harper and Row.

APPENDIX

Appendix A: Photographs: Researchers during field data collection, 2019.