

**ANALYSIS OF SMALL-SCALE CASSAVA-BASED FARMERS'
DEMAND AND UTILIZATION FOR MICROFINANCE BANKS
CREDIT IN IMO STATE, NIGERIA.**

BY

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**A THESIS SUBMITTED TO POSTGRADUATE SCHOOL, FEDERAL
UNIVERSITY OF TECHNOLOGY OWERRI.**

**IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE
AWARD OF DEGREE OF MASTER OF SCIENCE (M.Sc.), IN
AGRICULTURAL ECONOMICS, FEDERAL UNIVERSITY OF
TECHNOLOGY, OWERRI.**

JULY,2017

CERTIFICATION

I certify that this work "Analysis of Small-Scale Cassava-based Farmers' Demand and Utilization for Microfinance Banks Credit in Inwo State, Nigeria" was carried out by Okpara, Elias Uchechukwu (20124760188) in partial fulfillment for the award of the master degree (M.Sc.) in Agricultural Economics in the Department of Agricultural Economics of Federal University of Technology Owerri.



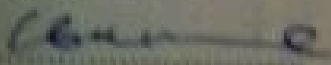
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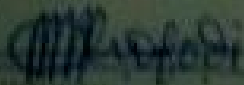


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DEDICATION

This work is dedicated to God Almighty.

ACKNOWLEDGEMENT

I wish to use this medium to say thanks to my precious supervisors, Prof. U.C. Ibekwe and Prof. D.O. Ohajianya for their constructive criticisms and words of encouragement during this work.

I remain grateful to all my lecturers who thought me during the course of the programme. I am grateful to Prof.U.C.Ibekwe (Head, Department of Agricultural Economics),Prof.P.C. Obasi, Prof. J.S. Orebiyi, Prof. M.A.C.A. Odi, Prof. N.N.O. Oguoma,Prof. J.I. Lemichi, Prof. C.C. Eze, Dr.S.U.O. Onyeagocha, Dr.O.C. Okorie, Dr. N.C. Ehirim, Dr. N.G. Ben-chendo, Dr. F.O. Nwosu, Dr. A. Henri-ukoha, and Dr. C.S. Onyemauwa.

I also use this medium to thank my mentors Dr. Anthony Onyejesi and Engr. Vitalis Okpara for their financial support and unceasing words of encouragement during the course of this work.

I am indebted to my lovely mother; Mrs. Benedeth Okpara for her care, love and prayers during the programme. I am very grateful to my brother Mr. Jude Okpara for his financial support during the course of this work.

My sincere gratitude also goes to Rev Fr. Dr. F.U. Onyebueke for his words of encouragement and prayers when the situation was beyond human control.

I will remain grateful to my course mates Mr. Onyekachi,Mr Awelle, Mr Obina and the rest of them who showed me love during the programme.

Finally, I thank to all those whom I could not mention but their love and supplications contributed in sustaining me during the period of this work.

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ABSTRACT

The study analyzed small-scale cassava-based farmers' demand and utilization for microfinance banks credit in Imo State, Nigeria. The specific objectives were to: examine the socio-economic characteristics of small-scale cassava-based farmers; determine the amount of credit demanded and obtained by small-scale cassava-based farmers; estimate the factors influencing the amount of credit demanded by small-scale cassava-based farmers; estimate the determinants on the amount of credit obtained; ascertain the uses of the loan obtained by small-scale cassava-based farmers; determine the repayment performance of small-scale cassava-based farmers and examine the determinants of the amount of loan repaid by small-scale cassava-based farmers in Imo state. Multi-stage random sampling techniques were adopted for this study and primary data were collected using structured questionnaire. Sample size of sixty (60) respondents was randomly selected from six (6) microfinance banks. Descriptive statistics, repayment formula, multiple regression technique and ANOVA technique were applied in the analyses. The results of the analyses showed that the mean age of the respondents was 49 years. The mean household size was 8 persons, while mean farming experience was 16 years and mean level of education was 13 years. The mean farm size was 0.67 hectare, and mean values of amount of credit demanded, obtained and repaid were ₦268,000, ₦109,675 and ₦118,833.33 respectively. The repayment performance of cassava-based farmers was 93.6%. The level of education, farm size, transaction cost, collateral, and distance from home to the bank, farming experience, and cost of credit had significant effect on the amount of credit demanded. The level of farm income, cost of credit, household size, age, farm size and gender have significant effect on the amount of credit obtained from microfinance banks. The level of education, farm income, farm size, amount of loan borrowed, cost of credit, household size and farming experience have significant effect in determine the repayment performance of small-scale cassava-based farmers in the study area. The ANOVA results showed that there was no significant difference on the amount of credit demanded by small-scale cassava-based farmers in the three agricultural zones of Imo State. The study recommended that by increasing the amount of credit disbursed, policy target of establishing microfinance banks will be attained, resulting to high repayment performance and improvement on cassava farming.

Keywords: small-scale, cassava-based farmers, demand and utilization,

microfinance banks credit and socio-economic

CHAPTER ONE

INTRODUCTION

1.1. Background of the study

Agriculture is the major source of livelihood for most developing countries in the world (Olujenyo, 2010). Nigeria is among the developing countries and depends on agriculture for survival and improvement in the economy, including employment and gross domestic product (Akinagbe, 2013).

In the economy of the country, small-scale farmers dominate in agricultural sector and play key roles in output. According to Food and Agricultural Organization (FAO, 2010), small-scale farmers may be defined as farmers that operate and cultivate not less than two hectares of land. On the other hand, small-scale cassava-based farmers may be defined as farmers that cultivate cassava as a major root crop not less than two hectares of land. According to Yakkassi (2010), cassava-based farmers account for production of what we consume and provide employment opportunities. For instance, cassava leaves may be consumed as a vegetable or cooked as a soup ingredient or dried and fed to livestock as protein feed supplements. Also other by products of cassava may be processed for human consumption and industrial uses (Abang, *et. al*, 2011). Nigeria produce about 31million metric tons out of 85 million metric tons estimated worldwide. In a bid to improve on this trend and to increase the foreign earnings, the federal government in 2003 launched an initiative for

increased cassava production and this resulted 55.69 metric tons in 2004 and 38 million metric tons in 2005 respectively(Yakassai ,2010).

Farm credit is very important for production of cassava and needs to be explored. According to Iganiga (2008), credit may be defined as enjoying control over the use of money, goods and services in the present, in the exchange for a promise to repay at a future date. It is also defined as the provision of loan that is repaid within short time and is used by low income individuals and households who have few assets that can be used as collateral (Ukeje, 2005). Credit can be considered from its ability to energize or motivate other factors of production. It can make the latent potentials or under-used capacities functional. In such situations, credit can act as a catalyst that activates the engine of growth, enables it to mobilize its inherent potentials and to advance in the expected direction (Ijere, 1998). With an injection of credit facilities into farming, its complementary role to industry would be realized with relative ease.

Majority of small-scale cassava-based farmers are rural dwellers and must make use of farm credit for output. The establishment of microfinance banks (then community banks) by the government has the target of providing access to services including farm credit to the rural dwellers (Shreiner, 2013). According to kimitha (2005), microfinance bank may be defined as a financial institution that provides financial services to the poor who are traditionally not served by the conventional financial institutions. Microfinance bank may also be defined as a financial institution licensed by the Central Bank of Nigeria to carry out

microfinance services such as savings, loans, domestic fund transfer and other financial services that are needed by the economically active poor, micro and medium enterprises (CBN, 2005).

Demand for farm credit by farmers is very important and has influence on farm production and repayment. According to Jhingan (2001), demand may be defined as the willingness and ability of the consumer in procuring and consuming the goods and the services. In respect to farm credit, it is the ability of the farmers to pay for the services provided by the financial institutions. The services provided by microfinance banks to the farmers need to be backed up by the ability of the farmers without finding it difficult along the process. According to Olomola (1999), loan disbursement lag, cost of the credit and other determinants of loan may significantly affect the farmers' performance on the available farm credit from financial institutions. As a result, this study was set out to analyze small-scale cassava-based farmers' demand and utilization for farm credit from microfinance banks in Imo State.

1.2 Statement of the Problem

In Nigeria's economy, agricultural sector has always been an important component with over 70 percent of the population engaged in agriculture and agriculture related activities (Obasi and Agu, 2000). Despite its role, agriculture contributes only 25-30% to the gross domestic product of the country (Yakassi, 2010). Nigeria is rated among the 25 poorest countries in the world (Igbuzor,

2006). According to National Bureau of Statistics (2010), Nigeria in 2010 was rated with 60.9% in hunger and lived in absolute poverty. This trend has been projected to continue and in order to tackle the situation, sustained growth in the agricultural sector needs to be taken.

Nigerian government has invested huge amount of capital in agricultural sector to ensure sustained food production. According to World Bank (2004), Nigerian government is increasingly given agricultural sector a higher priority in its effort to reduce poverty. Yet, agricultural production is low to a large extent that people are living on hunger and food insecurity. On the side of farmers, they complained that enough of farm credit has not been received to invest on agriculture in order to sustain output. Small-scale cassava-based farmers complained that amount of credit disbursed is below the amount of credit demanded from financial institutions and thereby affects their production. This may result to a shortage of the commodity in the market and high cost in the price of the commodity. According to Ohajianya (1996), banks have been reluctant to provide credit to small and medium enterprises, farmers in particular and the real sector in general. Generally, due to limited access to farm credit by the farmers, it may cause decline in the output and thereby increase the proportion of foreign exchange earnings of government towards importation of agricultural goods and services to the country (Rahji and Fakayode, 2009).

Agricultural lending has become a vital function as it contributes to sustained agricultural production and improves repayment performance. This is because farmers improve their level of income based on the amount of available farm credit. According to Nweze (1991), derivation of farmers on farm credit benefits depend on the size and conditions of the loan scheme, such as timeliness in disbursement and repayment, education, cost of credit, marital status and family size. According to Adegbite (2009), no financial institution can successfully operate a revolving loan scheme without loan beneficiaries fulfilling all the financial conditions and agreements stipulated by the banks and may result to discouraging such farmers in the loan scheme. Also, in the finding of Kodieche (2002), financial institutions always turn down the applications of farmers due to high cost of administration and high default rates often received from the farmers. Sometimes, small-holder farmers may regard government funded credits as their own national cake and find it difficult to repay the loans and thereby constrained financial institutions by poor loan repayment (CBN, 2005). Therefore, the study aims to examine some of the determinants on the amount of credit demanded, obtained and repaid by small-scale cassava-based farmers in the study area.

1.3 Objectives of the study

The broad objective of this study was to analyze small-scale cassava-based farmers' demand for microfinance banks credit in Imo State of Nigeria. The specific objectives were to:

- (i) examine the socio economic characteristics of small-scale cassava-based farmers in Imo State;
- (ii) determine the amount of credit demanded and obtained by small-scale cassava-based farmers;
- (iii) determine the factors influencing amount of credit demanded by small-scale cassava-based farmers from the microfinance banks;
- (iv) estimate the determinants of amount of credit obtained by small-scale cassava-based farmers in Imo State;
- (v) ascertain the uses of credit obtained by small-scale cassava-based farmers;
- (vi) determine the repayment performance of small-scale cassava-based Farmers; and
- (vii) estimate the determinants of amount of loan repaid by small-scale cassava-based farmers.

1.4 Hypotheses of the study

The hypotheses for the study were;

- i. Socio-economic characteristics of small-scale cassava-based farmers have no significant effect on the amount of credit obtained from microfinance banks.
- ii. Socio-economic characteristics of farmers' loan repayment have no significant effect on the amount of credit repaid to microfinance banks.
- iii. There are no significant differences in amount of credit demanded by small-scale cassava-based farmers from microfinance banks in the three agricultural zones of Imo State.

1.5 Justification of the study

The study examined the determinants of amount of loan obtained and repaid and the findings will encourage both the farmers and financial institutions to realize how to make a successful loan scheme in order to achieve a sustained cassava output in the area. It will help microfinance banks to make effective decision on credit disbursement to farmers in order to achieve a high repayment performance in the State. The study will be beneficial to policy makers and other stakeholders in the agricultural industry, as the information generated from the data could be used to make decisions toward achieving sustained agricultural output in the country.

1.6. Limitation of the Study

During the research work, the following limitations were observed;

- i The amount of credit demanded by small-scale cassava-based farmers was not disbursed to them for cassava farming and thereby affected their cassava output.
- ii The factors such as cost of credit, transaction cost, farming experience, household size, education, distance from home to the bank, collateral, amount of credit borrowed and gender affected the credit demanded, obtained and repaid by small-scale cassava-based farmers.
- iii The data collected were limited to 6 microfinance banks in the three agricultural zones of Imo state due to resources constraints and time frame.

CHAPTER TWO

LITERATURE REVIEW

2.1 Conceptual Framework

The conceptual framework consists of the following sub headings

2.1.1. Concept of Microfinance

According to Brook (2013), Microfinance is a collection of financial services including credit advances, money and insurance cover, accessible by farmers and small-scale enterprises who have no security and would not otherwise meet the requirement for an average bank loans. The Central Bank of Nigeria views microfinance as offering financial services to poor who are usually not served by the topical and financial institutions (CBN, 2005). According to Radwan (2008), microfinance may be defined as rendering financial packages to low income earners including small-scale farmers. Some of the financial services may include credit advances, disbursements, and services, transfer of cash and assurance services to the deprived families with low earnings. It is basically in relation to giving financial services to the low income earners and poor who have been refused financial services because they failed to pass the formal credit check set by the formal financial organization.

According to Légerwood (1999), microfinance involves the provision of a broad range of financial services such as deposits, loans, savings, payment services, money transfers and insurance to the poor and low income households

and their micro enterprises that are excluded from the formal financial systems. According to Conroy (2003), microfinance is the provision of financial services to the poor and low income households who have no access to formal financial institutions. According to James (2005), microfinance is the provision of financial services to low income groups and the poor. It is the development tool that grants or provides financial services such as very small credit, savings, micro leasing, micro-insurance and money transfer to assist the exceptionally poor in expanding or establishing their farm businesses (Ngehneu and Nimbo, 2010). Lan (2004), defined microfinance as the provision of financial services to the low income groups including the self-employed which have evolved as economic development approach intended to benefit the marginally poor people especially the women. According to Eluhaiwe (2005), microfinance is the provision of thrift, credit and other financial services and products in very small amount to the poor to enable them to raise their income levels and improve their standard of living.

2.1.2. Concept of Microcredit

According to Nwaru (2004), microcredit may be defined as enjoying control over the use of money, goods and services in the present in the exchange for a promise to repay at a future date. With microcredit, a lender forgoes the use of his money or its equivalent in the present by extending credit to a borrower who promises to repay on terms specified in the loan agreement. According to

Petrick (2004), microcredit may be defined as flexible processes and structures by which financial services are delivered to owners of micro enterprises on a sustainable basis. Microcredit is a provision for very small loans and deposit services to predominantly poor, under-served, rural borrowers, who are excluded from the financial system (Jain, 2003).

According to Ukeje (2005), microcredit may be defined as the provision of very small amount of loans used by low income individuals and households who have few assets that can be used as collateral and repaid within short period of time. Microcredit is defined as any credit facility and ancillary services, extended to both peasant farmers and poor non-farmers (rural populace), aimed at not only boosting agricultural production, but also at improving the standard of living of the rural populace, as well as, stimulating rural sector economic growth and development (Tijani, 2008).

2.1.3. Concept of Small-scale Farmers

Small-scale farmers may be defined as farmers that practiced farming on two hectares of land or less than two hectares of land (IFAD, 2008). There are over a 450 million small-scale farmers worldwide and support a population of roughly 2.2 billion people. According to Singh (2009), these farmers represent roughly 85 per cent of the world's farms and grow different crops in parts. They serve significant number of families and as well derive their livelihood. According to Food and Agricultural Organization (2010), Small-scale farmers

may be defined as farmers that cultivate two hectares of land and practiced farming.

Small-scale farmers cultivate many types of crops depending on the region. For example, in Indonesia many small-scale farmers grow rice along with other food crops (IFAD, 2011). In Cameroon, plantains, cassava, peanuts, cocoa, and maize are cultivated (World Bank, 2007). For tropical regions broadly, some of the most important cereals grown for food include rice, maize, sorghum, millet, Cassava, sweet potatoes, and bananas (FAO, 1996). According to FAO (2008a), women play a major role in small-scale agriculture, particularly in Africa, where they make up the majority of the farmers. The available statistical record shows that in Africa, approximately 2.5 billion people live directly from agricultural production systems, either as full, part-time, or members of farming households that support farming activities (FAO, 2008a).

Small-scale farmers produced food and non-food products on a small scale with limited external inputs. According to Reardon, *et.al* (1998) small-scale farmers practiced farming with limited inputs to cultivating field and tree crops as well as livestock, fish and other aquatic organisms. Murphy (2010) stated that Small-scale farmers are known and characterized by marginalization, in terms of accessibility, resources, information, technology, capital and assets. These farmers live in rural areas, some urban and peri-urban and play important role to supply food to people living in the area (IFAD, 2011a), and their agricultural practices and techniques offer an important source of knowledge for

the transition to sustainable agricultural intensification (World Bank, FAO and IFAD, 2009).

2.1.4. Concept of Demand for Credit

According to Jhingan (2001), demand may be defined as the willingness as well as ability of the consumer in procuring and consuming the goods and services. Demand is a consumer's readiness to satisfy desire by paying for goods or services. A desire accompanied by ability and willingness to pay makes a real or effective demand. Thus, demand for a commodity or service is dependent upon its utility to satisfy want or desire capability of the prospective consumer to pay for the good or service. In a nutshell, therefore, we can state that when desire is backed by willingness and ability to pay for a good or service then it becomes effective demand for the good or service such as credit.

2.2. Theoretical Literature

2.2.1 Theory of Demand for Credit

In the developing countries, the demand for credit according to Modigliani, (1966) states that individuals cannot maintain consumption at an acceptable level. He states that with the change in family size and uncertainties of future, a households' inter-temporal consumption pattern varies. The consumers should inter-temporally reallocate their incomes (resources) over their life time to maximize lifetime utility given the budget constraint (Morduch, 1995a). Consumers can smooth their consumption by using the savings from past

income or investment but impossible to use future income in the present since it is not realized. Hence, the consumer can smooth consumption and increase utility by accessing an account that can act as inter-temporal between the future lender and the present borrower. This account is consumer credit or borrowing. Credit helps individuals to make inter-temporal choice and becomes additional spending power in the present in exchange for repayment (loan and interest) in the future (Soman and Cheema, 2002).

2.2.2 Demand Function for Credit

Law of demand states that whenever price of a product increases then the demand for that product decreases and vice versa, provided other things remain constant (Reddy, *et. al*, 2004). While studying the law of demand the direct relationship between price and demand is studied. Here the Price of credit (cost of credit) will influence the amount of credit small-scale cassava-based farmers' demanded. According to Philip, *et.al*, (2009), if the cost of credit is high farmers may not demand for credit. As per the law of demand, demand is function of price provided other things remain constant. This means that,

$$D_x = f(P_x) \dots \dots \dots \text{eq 2.1}$$

Where, D_x is demand for commodities (credit) X , which is dependent variable, and P_x is the price (interest charged) of X , which is independent variable (Reddy, *et. al*, 2004). The demand function if considered as linear or straight line function can be expressed in the form of following equation:

$$D_x = a + bP_x \dots\dots\dots \text{eq 2.2}$$

Where ‘a’ and ‘b’ are constants. ‘a’ is intercept and ‘b’ quantifies the relationship between D_x and P_x (Reddy, *et. al*,2004).

2.3 Empirical Literature

2.3.1 Economic Importance of Cassava

Cassava (*Manihot esculenta*) is a widely grown crop in most countries in the tropical regions of Africa, Latin America, and Asia, and ranks as one of the main crops in the tropical countries (Kartz and Weaver, 2003).It is a cheap and reliable source of food for more than 700 million people in the developing world as well as alternative to maize in livestock feed (Udedibie and Enyenihi, 2009). It is widely cultivated in Nigeria where it plays vital role in the food security of the rural economy because of its capacity to yield under marginal soil conditions and tolerant to drought (Ezedinma, *et.al*, 2006). This crop is a major source of calories for two out of every five Nigerians (Nweke, *et.al*, 2002). These and other features endowed it with a special capacity to bridge the gap in food security, poverty alleviation and environmental protection (Clair and Etukudo, 2002).

According to Yakassai (2010), cassava plays a leading role in the gross domestic product of country. It is one of the affordable staples and is predominantly the key income generating arable crop. In addition to providing food for consumption, employment to rural youths, cassava products can be exported to generate more foreign earnings. Its relative ease of production, high

resistant ability, moderate ability to withstand drought in the face of any prevailing climate variability, give cassava an advantage over other crops as regards hunger and poverty reduction. Further information from Yakassai (2010), states that cassava constitutes 15% peels and 85% fresh tuber flesh, with the flesh made up of 30% starch, 63% water content 2% protein, 1-2% fibre, with trace vitamins and minerals.

2.3.2. Overview of Microfinance Banks

The practice of microfinance is not new in Nigeria. Nigerians have always tried to provide themselves with needed finances through informal microfinance approaches like self-help groups (SHGs), rotating savings and credit associations, (ROSCAs), accumulating credit and savings associations (ASCAs) and direct borrowings from friends and relations (CBN,2005; Akpan, 2009;Okpara, 2009; and Okpara ,2010). These approaches may have sufficed in the traditional society but the growth in the sophistication of the economy and the increasing incidence of poverty among citizens revealed the shortcomings of this approach. The Central Bank of Nigeria alluded to this when it pointed out that the informal financial institutions that attempt to provide microfinance services generally have limited outreach due primarily to paucity of loanable funds (CBN, 2005).

It was in a bid to resolve this identified deficiency of the informal microfinance sector that the CBN in 2005 introduced a microfinance policy, a prelude to the licensing of microfinance banks in Nigeria. According to this

policy document, its aim is to provide a microfinance framework that would enhance the provision of diversified microfinance services on a long-term sustainable basis for the poor and low income groups, create a platform for the establishment of microfinance banks and improve CBN's regulatory and supervisory performance in ensuring monetary stability and liquidity management. Microfinance banks were therefore established because of the failure of the existing microfinance institutions to adequately address the financing needs of the poor and low income groups (Acha, 2008b). The CBN further justified its licensing of microfinance banks with the lack of institutional capacity and weak capital base of existing community banks, existence of huge un-served market and need for increased savings opportunity (CBN, 2005). Central bank of Nigeria (2005), added that the existing microfinance banks serve less than one million people out of 40million potential people that need the service.

Taking the issue of lack of capacity by existing financial institutions further, the CBN pointed out that only 35% of Nigerians had access to financial services and that most of those without access to financial services dwell in the rural areas. In the same vein, Nwankwo (2008), noted that over 95% of the businesses in Nigeria are small scale and that conventional banks choose not to finance such businesses. This is attributed to the high risks inherent in them and their inability to provide asset-based collateral. It was therefore to make up for the shortfall in the financing of the entrepreneurial poor and their small businesses that

microfinance banks were established. To qualify for a microfinance license an existing community bank was required to increase its paid-up capital from ₦5million to ₦20million. Unlike the community banking policy framework which compulsorily confined all community banks to unit banking, the microfinance banking guideline permitted the branching of microfinance banks within a state. For microfinance banks intending to open branches within a state, their paid-up capital was put at ₦1billion.

2.3.3. Small-Scale Farmers Demand for Microcredit

Small-scale farmers' demand for microcredit plays an important role in enhancing economic recovery. The extents to which farmers can have access to external financing have influence on the investment activity of the farmers as well as the ability to trade internationally (McCann, 2001). According to Basu, *et.al*, (2004), World Bank survey on rural demand to finance indicates that 70% of the rural poor farmers do not have a bank account and 87% have no access to credit from a formal source. According to this study, informal sector lenders remain a strong presence in many less developed economies, delivery finance to the poor on frequently extortionary terms and access to other financial services such as savings accounts, life, health and crop insurance also remains limited to the rural small-scale farmers.

Access to financial services enable the poor farmers to move from every day for survival to planning for the future, investing in better nutrition, children education, health and empowering women socially(Iganiga,2008). According to

Girabi and Mwakage (2013), access to credit will enable farmers to have access to market, pay for transportation, buy improve farm inputs, and use superior technology thereby increasing their farm yields per hectare. It enhances the production capacity of the poor resources farmers through financial investment in their human and physical capital (Okurut, *et.al*, 2004). The availability of adequate and timely credit helps in expanding the scope of operation and adoption of new technology as well as enhancing the purchase and use of improve inputs which are not available on the farm (Oladeebo and Oladeebo, 2008).

2.3.4. Determinants of Farmers Demand for Credit

According to Philip, *et.al* (2009), major factors that determine farmers' access to credit include educational level, high interest rate on loan, types of collateral security requirement. Adegbite (2009), states that lack of knowledge of how to prepare and present a loan application to a bank and what specific information the bank might require contribute in determining the farmers demand for credit. According to Diagne and Zeller (2002), in sub-Saharan Africa, high interest rate charged by banks is commonly disincentives to borrowing. They attribute this to a number of reasons including, perceived high risk of venture being financed and lack of collateral, lack of a properly functioning market in financial services, high rate of default on loans, inefficient means of outreach resulting in high transaction cost, the rediscount rate of central banks and high inflation rates prevailing in most sub-Saharan African economies.

Thus, interest rate charged by the bank is one of the determinants on access to farm credit by the farmers in sub-Saharan Africa. Yitayal(2004), opines that the types of financial institution and its policy, will often determine the demand for credit. Where credit duration, terms of payment, required security and the provision of supplementary services do not fit the needs of the target group, potential borrowers will not apply for the credit. Also, the age of the farmers, farm size, and educational level of the farmers, distance of technical services, household size, and social economic associations such as age grade, cooperative societies and associations are the factors that influenced farm credit demand (Ewuosla and William, 1995).

2.3.5. Socio-economic Characteristics of Small-Scale Farmers

According to Roger (1995), socio-economic features of the farmers include the family size, age and sex, composition of farm household, dependency ratio and educational attainment. The age structure of the farmer is an important factor in the context of farm credit together with the educational level. He indicated that farm size, educational qualification, social status, extension change agency contact, empathy and achievement, together with motivation are features of farmers.

2.3.6. Determinants of Loan Repayment by Farmers.

Many financial institutions in developing countries provide financial services such as saving and credit to aid several smallholder enterprises

including farmers. This is an effort in line with the Millennium development goals which seeks to reduce poverty by 50% by the year 2015. The sustainability and continuity of the financial institutions to increase the volume of credit to stimulate the poverty reduction goal depends on the repayment rates. High repayment rates allow the institutions to lower the interest rates and processing costs and consequently increase patronage of loans. Repayment performance thus serves as a positive signal for increasing the volume of credit availability to various sectors of the economy (Acquah and Addo, 2011).

The findings of Oladeebo and Oladeebo (2008), showed that amount of loan obtained by farmers; years of farming experience with credit and level of education were major factors that positively and significantly influenced loan repayment. According to Eze and Ibekwe (2007), amount of loan received, age of beneficiary, household size, and years of formal education and occupation are significant factors of loan repayment under the Indigenous financial system in Southeast. The findings of Mashatola and Darroch (2003), state that farm size, (provide by annual gross turnover), access to off-farm income, and average annual gross turnover affect the loan status and repayment scheme of sugarcane farmers.

2.3.7. Analytical Framework

Both quantitative and descriptive techniques were used in analyzing the data obtained in this study. To achieve the determinants of amount of loan demanded, obtained and repaid from microfinance banks, there are many

methods used in econometric research. For this study, ordinary least square (OLS) multiple technique was used where four functional forms of linear, semi-log, double log and exponential were fitted in the line (Olayemi, 1998). The Ordinary least square technique was used to estimate the relationship between dependent variable and the explanatory variables. The multiple linear regression model is stated as;

$$Y_k = b_0 + b_1X_1 + b_2X_2 + b_3X_3 + \dots + b_kX_k + e \dots \dots \dots \text{eq 2.3}$$

Where k=1, 2, 3, 4n

Y=dependent variable

x=independent variable

b₀=intercept, predicting value of Y when all the independent variables are zero

b=regression coefficient.

e= the error term.

The ordinary least square technique was used to estimate the parameters of the model. The least square criterion required that the coefficients b₀, b₁, b₂ and b₃ are chosen so that sum of squared errors is minimized. This is because with the normality assumption in the error term, the OLS estimators are normally distributed and are called the best linear unbiased estimators or BLUE (Olayemi and Olayide, 1981). The technique usually produced estimators of the standard error and a coefficient of multiple determinations.

In addition, ordinary least square technique has been applied by researchers to estimate the relationship between variables and the technique has given them the best results, such as; Ohajianya (1996), studied on demand for Agricultural credit from community bank in Imo state and used ordinary least square to examine the factors influencing repayment and found that level of education, farming experience, household size, personal income, loan processing time and loan transaction cost affected loan repayment.

To achieve the repayment performance of small-scale cassava-based farmers, repayment formula as was used by Nwosu, *et al* (2014), and is stated as;

$$RR = \sum_{i=1}^n \frac{Ai}{Tr} \dots\dots\dots eq 2.4$$

Where,

RR = repayment rate (%)

n = number of beneficiaries

Ai = amount repaid (₦)

Tr. = total amount due for repayment (₦)

The repayment formula has been useful to financial institutions. For instance, Nwosu, *et.al* (2014), carried out the analysis of loan repayment performance of livestock farmers in the south east states, the result showed a repayment rate of 90.1%. The findings of Oke,*et.al* (2007), on microcredit

repayment in southeast Nigeria has a high repayment rate of 90%. Contrarily, the findings of Acqnah and Addo (2011), reported a low repayment rate of 29.1% on fishermen in Ghana and the findings of Onyenucheya and Ukoha (2007) ,reported a low repayment rate of 45% on farmers under the Nigerian Agricultural Cooperative and Rural Development Bank (now Bank of Agriculture) in Abia State.

CHAPTER THREE

METHODOLOGY

3.1 Study Area

This study was conducted in Imo State of Nigeria. The State was created in 1976 from the old East Central State of Nigeria. The state was named after the Imo River and has its capital in Owerri. It is a tropical rainforest zone, located in the Southeastern zone of Nigeria. The State lies within latitudes 4°45'N and 7°15'N, and longitudes 6°50'E and 7°25'E with an area of about 5,100 sq. km (Nwaiwu, *et. al*, 2013). It is bordered by Abia State on the East, River Niger and Delta State on the west, Anambra State to the north and River State to the south.

Imo State is one of the 36 States in Nigeria, has a population of about 4.061 million people disaggregated into 2.097 males and 1.964 females (NPC, 2006). The State is divided into 27 administrative units called Local Government Areas (LGAs) which are grouped into 3 agricultural zones of Owerri, Orlu and Okigwe. Agriculture is the predominant occupation of the people, for almost all the farm families either as primary or secondary occupation. The ecological zone favors the growing of crops, like roots and tubers, cereals, vegetables and nuts. These crops are grown in small holder plots usually in mixtures of at least two simultaneous crops or growing of one crop in the farm (Imo ADP, 1990). Among the root crops, cassava is generally cultivated by small holder farmers due to its resistant to drought and served many households as a staple food (Yakassi, 2010). The State is also rich in natural resources including crude oil,

natural gas, lead, zinc and economically exploitable flora like the Iroko, Rubber tree and Oil Palm (Imo ADP, 1990).

However, Imo State experiences two seasons; the rainy season begins in April and lasts until October with annual rainfall varying from 1,500mm to 2,200mm and dry season from November to March. The state experiences average annual temperature of above 26-28°C, thereby creating an annual relative humidity of 98%. The hottest months are between January and March (Imo ADP, 1990). With these seasons, the growing of cassava in the farm with the services such as farm credit from microfinance banks will result to increase in the output.

3.2. Sample Selection

Multi-stage random sampling techniques were used to draw small-scale cassava-based farmers that have benefitted from microcredit of microfinance banks (MFBs). In the first stage, a purposive sampling technique was adopted to select two LGAs from each of the three agricultural zones where small-scale cassava-based farmers have benefitted from microfinance banks credit. The LGAs selected include Orsu and Isu LGAs from Orlu zone, Ngor Okpala and Owerri West LGAs from Owerri zone, and Isiala Mbano and Obowu from Okigwe Zone, giving a total of six (6) LGAs. In the second stage, one microfinance bank was randomly selected from each of the 6 Local Government Areas (LGAs) selected for the study, thus giving a total of six (6) microfinance banks. In the third stage, the sample frame was the list of small-scale cassava-

based farmers that have benefitted from the microfinance bank credit, compiled by the bank. From the sampling frame, ten (10) small-scale cassava-based farmers were randomly selected from each of the six (6) microfinance banks, making a total sample size of 60 cassava-based farmers for the study.

3.3 Data Collection

Data used for this study were collected from primary source. Questionnaire was used to collect data from the farmers in the field. The questionnaire solicited information on the socio-economic characteristics of small-scale cassava-based farmers which include; the farmer's age, marital status, household size, occupation and level of education. The amount of credit demanded and obtained by small-scale cassava-based farmers together with the determinants of demand for credit such as cost of the credit, collateral requirement, farmers' experience and hectares of land used in the area were collected. Also the uses of credit obtained and the determinants of amount of credit repaid to microfinance banks were collected.

3.4 Data Analyses

Objectives i, ii, and v were analyzed using descriptive statistics such as mean, frequency distribution and percentage. Objectives iii, iv and vii were analyzed using ordinary least square multiple regression technique.

To achieve objective iii, which was to determine the factors influencing amount of credit demanded by small-scale cassava-based farmers from

microfinance banks, multiple regression model was used. The implicit form of the model is stated as follows:

$$Y = (X_1, X_2, X_3, X_4, X_5, X_6, X_7, X_8, X_9, e) \dots\dots\dots \text{eq 3.1}$$

Where,

- Y = Amount of credit demanded (₦)
- X₁ = Level of Education (years spent in school)
- X₂ = Farming Experience (Years)
- X₃ = Cost of credit (₦)
- X₄ = Farm Size (Ha)
- X₅ = Transaction Costs (₦)
- X₆ = Collateral requirement (Dummy variable, 1 if farmers possesses required collateral, 0 if otherwise)
- X₇ = Distance from home to the bank (km)
- X₈ = Household size (No. of Persons)
- X₉ = Marital Status (Dummy Variable, 1 for married, 0 for Single)
- e = error term

It is expected *a priori* that the coefficients of X₁, X₂, X₄, X₆, X₈, X₉ > 0; X₃, X₅, X₇ < 0.

Objective iv was on the determinants on amount of credit obtained from MFBs by small-scale cassava-based farmers. The model was implicitly stated as:

$$Y = f(X_1, X_2, X_3, X_4, X_5, X_7, X_8, X_9, e) \dots\dots\dots \text{eq. 3.2}$$

Where,

Y=Amount of credit obtained from MFBs (₦)

X₁ = Collateral requirement (Dummy: 1 if required, 0 if not required)

X₂= Annual farms income (₦/yr.)

X₃ = cost of credit (₦)

X₄ = Household Size (No of persons)

X₅= Level of Education of respondents (Years in School)

X₆ = farming experience (Years)

X₇= Age of respondents (Years)

X₈ = Size of farm (Ha)

X₉= Gender of the respondents (Dummy: Male = 1; Female = 0)

e = error term.

The *a priori* expectation is that the coefficients of X₂, X₄, X₅, X₆, X₈ > 0; X₁, X₃, X₇, X₉, < 0.

Objective vi was to determine the repayment performance of small-scale cassava-based farmers and analyzed with the formula:

$$RR = \sum_{i=1}^n \frac{Ai}{Tr} \dots\dots\dots eq 3.3$$

Where,

RR = repayment rate (%)

n = number of beneficiaries

Ai = amount repaid (₦)

Tr. = total amount due for repayment (₦)

The repayment formula has been useful to financial institutions and researchers. Nwosu, *et. al* (2014), showed repayment rate of 90.1% on the analysis of loan repayment performance of livestock farmers in the south east states, Nigeria.

Objective vii was on the determinants of loan repayment of small scale cassava-based farmers to MFBs. The model was implicitly stated as:

$$Y=f(X_1,X_2,X_3,X_4,X_5,X_6,X_7,X_8,e).....eq 3.4$$

Where,

Y= Amount of loan repaid (₦)

X₁= Amount of loan borrowed (₦)

X₂= cost of credit paid (₦)

X₃= House hold size (No. of persons)

X₄= Level of education (Years in school)

X₅= Farming experience (years)

X₆ = Annual household income (₦)

X₇= Age of respondents (years)

X₈= Size of farm (Ha)

e= error term

The *a priori* expectation is that the coefficients of X₁, X₄, X₅, X₆, X₈ > 0; X₂, X₃, X₇ < 0.

Ordinary least square multiple regression models in equation 3.1, 3.2 and 3.4 were fitted on the information collected from the respondents in the area. Four functional forms that include linear, semi-log, double-log and exponential were fitted into the models and the form that best fits the regression line based on econometric and statistical criteria was chosen as the lead equation and used for the analyses. (Olayemi and Olayide,1981).

3.5 Test of Hypotheses

Hypothesis i was tested from the regression result of objective iv, using the t-ratios, with a view to ascertaining if the age, education, household size, gender, farming experience and farm size of small-scale cassava-based farmers has significant effect on the amount of credit obtained from MFBs.

Hypothesis ii was tested from the regression result of objective vii of the study, using the t- ratios to estimate if the determinants have significant effect on the amount of credit repaid to MFBs.

Hypothesis iii was tested using ANOVA model which is stated as follows;

$$F = \frac{MSSB}{MSSW} = \frac{SSB / (K-1)}{SSW / (N-K)}$$

$$TSS = SSB + SSW$$

$$SSB = \sum_{j=1}^n (X_j - \bar{X})^2$$

$$SSW = \sum_{i=1}^K \sum_{j=1}^n (X_{ij} - \bar{X}_j)^2$$

Where

F = Value by which the statistical significance of the mean differences was judged

TSS = Total Sum of Squares

SSB = Sum of squares deviations between the amount of credit demanded by small-scale cassava-based farmers, samples means.

SSW = Sum of squared deviations within the amount of credit demanded by the small-scale cassava-based farmers.

\bar{X} = Mean of amount of credit demanded by the cassava-based farmers

$\overline{\bar{X}}$ = Grand Mean amount of credit demanded by the farmers

N = Sample size of the cassava-based farmers in Imo State

K = Number of agricultural zones

K-1 = Numerator degrees of freedom

N-K = Denominator degrees of freedom

Treatment and Replication for ANOVA Model

Treatment	Replication	
Zone	LGAs	
	1	2
Orlu	X	X
Owerri	X	X
Okigwe	X	X

Where,

X = Amount of credit demanded

Decision Rule:

The F- calculated is compared with F-critical at V_1 , V_2 degrees of freedom. If F-calculated is greater than F-critical, reject the null hypothesis, and if otherwise, accept the null hypothesis.

CHAPTER FOUR

4.0

RESULTS AND DISCUSSION

4.1. Socio-economic Characteristics of Small-scale Cassava-based Farmers

4.1.1. Age

The distribution of respondents according to age is presented in Table 4.1. The table shows that 36.67% of ages of small-scale cassava-based farmers were within the class interval of 40-49 years. The table also shows that 18.67% and 16.67% of ages of small-scale cassava-based farmers were in the class intervals of 50-59 and 30-39 years respectively.

Table 4.1: Distribution of Respondents According to Age

Age (years)	Frequency	Percentage
20-29	3	5.00
30-39	10	16.67
40-49	22	36.67
50-59	11	18.33
60-69	10	16.67
70-79	4	6.67
Total	60	100.00
Mean Age	= 49 years	

Source: Field survey data, 2016

The table further shows that 16.67% and 6.67% of ages of small-scale cassava-based farmers were in the class intervals of 60-69 and 70-79 years respectively. The mean value age of the respondents was 49 years. It implies that small-scale

cassava-based farmers were within the productive and economic active age and may respond positively to any intervention that aimed at improving their level of cassava farming.

The finding may also suggest that provision of credit to small-scale cassava-based farmers, a positive improvement may be realized which will lead to increase in cassava output and high repayment performance in the area. According to Oladeebo and Oladeebo (2008), provision of credit service to productive farmers by financial institution may result to adopt of new innovations and increased output.

4.1.2. Gender

The distribution of respondents according to gender is presented in Table 4.2. The table shows that 51.67% of the respondents were males and 48.33% of the respondents were females. The table shows that both the male and female farmers participated in the cassava farming in the area.

Table 4.2: Distribution of Respondents According to Gender

Gender	Frequency	Percentage
Male	31	51.67
Female	29	48.33
Total	60	100

Source: Field survey data, 2016

It implies that male respondents are naturally endowed with the strength to embark on farming and are bread winners of the family. It also shows that the male and female cassava-based farmers accessed farm credit from microfinance banks since they took cassava farming as their occupation. According to Williams, *et.al* (2007), and Akanni (2007), when farmers have title to farm lands, the tendency to obtain farm credit from financial institution is assured and this leads to increased output and repayment.

4.1.3 Marital Status

The distribution of respondents according to marital status is presented in Table 4.3. The table shows that 93.33% of small scale cassava-based farmers were married and 6.67% of farmers were single.

Table 4.3: Distribution of Respondents According to marital Status

Marital status	Frequency	Percentage
Single	4	6.67
Married	56	93.33
Total	60	100

Source: Field survey data, 2016

This implies that married men and women may receive farm credit from microfinance banks more than single cassava-based farmers in the area. It could be because that married men and women are more settled, more matured, more trustworthy and have more potential for family labour supply. This finding

collaborates with a similar study with Ibekwe (2001), that household with greater number of family members, especially those not dominated by children, are more advantageous, because they add more to household labour, and this in turn leads to increased production. The finding shows that married men and women will attain increase in cassava production, thereby generate returns to pay for the loan in the area.

4.1.4. Level of Education

The distribution of respondents according to level of education is presented in Table 4.4. The table shows that 48.33% of small-scale cassava-based farmers were within the class interval of 7-12 years of education attainment.

Table.4.4: Distribution of Respondents According to Level of Education

Education (years)	Frequency	Percentage
1-6	4	6.67
7-12	29	48.33
13-18	12	20.00
19-24	15	25.00
Total	60	100

Mean years of schooling =13 years

Source: Feld survey data, 2016

The table also shows that 25% and 20% of small-scale cassava-based farmers were within the class intervals of 19-34 and 13-18 years in the education attainment. The mean value level of education of small-scale cassava-based was

13 years. This implies that small-scale cassava-based farmers' received basic education which may be a condition for them to benefit from Microfinance banks' loan in the area. The increase in the level of education attainment will lead to adoption of new production technologies (Obasi *et. al*, 2015).

The finding suggests that high level of education attainment will result in high level of managerial ability in the cassava-based farming and lead to improvement in the amount of credit obtained from microfinance banks in the area. According to Orebiyi (2000), education is an investment in human capital which improves productivity and performance and is able to raise the quality of skill of man, narrow his information gap and increase his allocative ability, thereby leading to more productive performance.

4.1.5. Household size

The distribution of respondents according to household size is presented in Table 4.5. The table shows that 71.67% of small-scale cassava-based farmers were in the class interval of 6-10 of household size, while 18.33% of the respondents were within the class interval of 1-5 of household size and 8.33% of the respondents were in the class interval of 11-15 of household size. The mean value household size of small-scale cassava-based farmers is 8 persons. It implies that household size of small-scale cassava-based farmers is large where family labour may be supplied for the farming activities. The result also implies that small-scale cassava-based farmers could successfully obtain credit from

microfinance banks since they have family labour to work on the farm in order to provide returns to pay for the loan.

Table 4.5: Distribution of Respondents According to Household size

Household size (No. of Persons)	Frequency	Percentage
1-5	11	18.33
6-10	43	71.69
11-15	5	8.33
16-20	1	1.67
Total	60	100
Mean of Household size =8 persons		

Source: Field survey data, 2016

This is in conformity with the finding of Ibekwe (2001), that household with greater number of family members especially those not dominated by children are more advantageous, because they add more to free labour, and this in turn leads to increased production.

4.1.6. Main Occupation

The distribution of respondents according to main occupation is presented in Table 4.6. The result shows that 53.33% of small-scale cassava-based farmers practiced farming as their main occupation, while 26.67% were civil servants and 20% of respondents were traders.

Table 4.6: Distribution of Respondents According to Main Occupation

Occupation	Frequency	Percentage
Farming	32	53.33
Civil servant	16	26.67
Trading	12	20.00
Total	60	100

Source: Field survey data, 2016

It implies that majority of small-scale cassava-based farmers took farming as their main occupation and would perform well in the business, and become managers to offset loan granted from microfinance banks in the study area.

4.1.7. Farming Experience

The distribution of respondents according to farming experience is presented in Table 4.7. The table shows that 50% of small-scale cassava-based farmers were within the modal class interval of 11-20 of farming experience. The table also shows that 25% and 20% of small-scale cassava-based farmers were within the class intervals of 1-10 and 21-30 of farming experience respectively. The mean value of farming experience of small-scale cassava-based farmers was 16 years. It implies that small-scale cassava-based farmers have long number of years in the cassava farming in the area. It also suggests that small-scale cassava-based farmers will learn from their experiences and thus become better managers.

Table 4.7: Distribution of Respondents According to Farming Experience

Experience (years)	Frequency	percentage
1-10	15	25
11-20	30	50
21-30	2	3.33
41-50	1	1.67
Total	60	100

Mean of farming experience = 16 years

Source: Field survey data, 2016

The finding suggests that since the beneficiaries have long years of experience in cassava farming, they might become well established for them to benefit from microfinance banks credit, with ultimate aim of increasing their level of production and return the loan in the area. The finding is consistent with the findings of Orebiyi, *et.al* (2012), that the higher the farmer's farming experience, the higher his knowledge to tackle farm production problems and the higher his output.

4.1.8. Farm Size

The distribution of respondents according to farm size is presented in Table 4.8. The table shows that 88.33% of small-scale cassava-based farmers were in the class interval of 0.1-1.0 of farm size. The table also shows that 11.67% of small-scale cassava-based farmers were in the class interval of 1.1-2.0 of farm size in the study area. The mean value of farm size of small-scale cassava-based

farmers was 0.67 hectare. This implies that small-scale cassava-based farmers' productions were under subsistence. It also suggests that the respondents obtained farm credit from microfinance banks based on the hectares of farmland they manage in the area. The finding is consistent with the finding of (Ehirim *et. al*, 2014).

Table 4.8: Distribution of Respondents According to Farm Size in Hectare

Farm size (hectare)	Frequency	Percentage
0.1-1.0	53	88.33
1.1-2.0	7	11.67
Total	60	100
Mean of farm size = 0.67 hectare		

Source: Field survey data, 2016

The finding also shows that small-scale cassava-based farmers may encounter the problem of land tenure system which may affect their performance in output. But managing the available hectare of farmland with their long years of experience would lead to higher level of income as a result of higher level of production. The finding is in line with the finding of Obasi (2007) that as population increases, farm size reduces due to partitioning in the inheritance process. This leads to more intensive land use system because population growth forces farmers to shorten fallow periods, increase investment on land, and manage soil fertility through addition of manure etc.

4.1.9. Household Farm Income

The distribution of respondents according to household farm income is presented in Table 4.9. The table shows that 26.67% of household farm income per month for small-scale cassava-based farmers was in the class interval of 11,000-20,000. The table also shows that 25% and 21.67% of household farm income per month of the respondents were in the class interval of 1,000-10,000 and 21,000-30,000 respectively.

Table 4.9: Distribution of Respondents According to Household Farm Income

Farm Income Per Month (₦)	Frequency	Percentage
1,000-10,000	15	25
11,000-20,000	16	26.67
21,000-30,000	13	21.67
31,000-40,000	5	8.33
41,000-50,000	6	10
51,000 and above	5	8.33
Total	60	100

Mean of farm income per month = ₦20,625

Source: Field Survey Data, 2016

The mean value of household farm income per month per 0.67 hectare of farmland was ₦20,625. This implies that small-scale cassava-based farmers took the cassava farming as an occupation and used their long years of farming experience in the production.

The finding suggests that small-scale cassava-based farmers may benefit from credit service and other entitlements from microfinance banks in the area. *Ceteris paribus*, the higher the level of farm income, the higher the amount of credit that small-scale cassava-based farmers will obtain from microfinance banks, which leads to improvement in the repayment and reduced loan diversion. The finding is consistent with the findings of Henri-Ukaoha *et.al* (2011), that farmers in Ohafia utilized their loan for agricultural activities as the rate of loan diversion was 12% due to their managerial ability.

4.2. Amount of Credit demanded and Obtained by Small-scale Cassava-based Farmers

The amount of credit demanded and obtained by small-scale cassava-based farmers determines the level of agricultural innovations and technologies that farmers would adopt in order to increase cassava output in the study area. The results of the data collected were presented as follows:

4.2.1. Amount of Credit Demanded

The distribution of respondents according to amount of credit demanded is presented in Table 4.10. The table shows that 45%, 50% and 25% of amount of credit demanded from microfinance banks by small-scale cassava-based farmers were in the modal class interval of 1,000-100,000 for Orlu, Owerri and Okigwe Agricultural Zones respectively. The mean values on the amount of credit

demanded by small-scale cassava-based farmers for Orlu, Owerri and Okigwe agricultural zones were ₦225, 500, ₦223, 000 and ₦355,500 respectively.

Table 4.10: Distribution of Respondents According to the Amount of Credit Demanded by small-scale cassava-based farmers

Amount Demanded (₦)	Orlu zone		Owerri zone		Okigwe zone		Pooled	
	Frequency	(%)	Frequency	(%)	Frequency	(%)	Frequency	(%)
1,000-100,000	9	45	10	50	5	25	24	40
101,000-200,000	2	10	3	15	2	10	7	11.67
201,000-300,000	2	10	1	5	4	20	7	11.67
301,000-400,000	3	15	1	5	2	10	6	10
401,000-500,000	2	10	2	10	2	10	6	10
501,000-600,000	1	5	1	5	-	-	2	3.33
601,000-700,000	-	-	-	-	2	10	2	3.33
701,000-800,000	1	5	-	-	1	5	2	3.33
801,000-900,000	-	-	-	-	-	-	-	-
901,000-1,000,000	-	-	1	5	2	10	3	5
1,001,000 and above	-	-	1	5	-	-	1	1.67
Total	20	100	20	100	20	100	60	100
Mean	225,500		223,000		355, 500		268,000	

Source: Field survey data, 2016.

The table shows that the grand mean value on the amount of credit demanded by small-scale cassava-based was ₦268, 000. This implies that the amount of credit demanded is low and hence, it represents the scale of production which is small scale. The small-scale cassava-based farmers will response positively in repaying the amount of loan received from microfinance banks in the study area. The

finding is in line with the findings of Amao (2013), where the demands of loan from financial institutions were based on their scale of production.

4.2.2. Amount of Loan Obtained

The distribution of respondents according to amount of loan obtained is presented in Table 4.11. The table shows that 51.67% of amount of loan obtained by small-scale cassava –based farmers were in the modal class interval of 1,000-100,000 .The table also shows that 41.67% and 5% of amount of loan obtained by the respondents were in the class intervals of 101,000-200,000 and 201,000-300,000 respectively.

Table 4.11 Distribution of Respondents According to the Amount of Loan Obtained

Amount Obtained (₦)	Frequency	Percentage
1,000-100,000	31	51.67
101,000-200,000	25	41.67
201,000-300,000	3	5
301,000-400,000	1	1.67
Total	60	100

Mean of amount obtained = ₦109,675

Source: Field survey data, 2016

The table shows that the mean value of amount of loan obtained by small-scale cassava-based was ₦109,675. This implies that the mean value of the amount of loan obtained was below the mean value of ₦268,000 of credit demanded by small-scale cassava-based farmers. The table shows that the amount of loan

demand was not granted, but every small-scale cassava-based farmer received part of the loan demanded from microfinance banks in the area. According to Nweze (1991), for a farmer to derive benefits from any institutional credit, the size of the loan is very important.

4.2.3 Cost of Credit

The distribution of respondents according to cost of credit is presented in Table 4.12. The table shows that 50% of small-scale cassava-based farmers were in the modal class interval of 1,000-10,000 of cost of the credit. The table also shows that 20% and 10% of the respondents were in the class intervals of 11,000-20,000 and 21,000-30,000 respectively. The mean value of cost of credit was ₦14,666.67 per farmer. The cost of credit is one of the determinants of loan in the financial institutions and contributed to the amount of credit demanded and obtained by the farmers in the area. The amount of loan disbursed by microfinance banks with respect to the cost will influence the cassava farming and output in the area.

Table 4.12: Distribution of Respondents According to Cost of Credit (₦)

Cost of Credit (₦) per farmer	Frequency	Percentage
1,000-10,000	30	50
11,000-20,000	12	20
21,000-30,000	6	10
31,000-40,000	1	1.67
41,000-50,000	3	5
51,000 and above	8	13.33
Total	60	100

Mean of Cost of Credit = ₦14,666.67 per farmer

Source: Field survey data, 2016

According to Nweze (1991), for a farmer to derive benefits from any institutional credit, the size of the loan is very important.

4.2.4 Interest Rate Charged

The distribution of respondents according to interest rate charged is presented in Table 4.13. The table shows that 51.67% of small-scale cassava-based farmers were in the modal class interval of 0.11-0.20 in the interest rate charged. The table also shows that 41.67% and 6.67% of the respondents were in the class intervals of 0.01-0.10 and 0.21-0.30 respectively in the interest rate charged.

Table 4.13: Distribution of Respondents According to Interest Rate Charged

Interest Rate per year (%)	Frequency	Percentage
0.01-0.10	25	41.67
0.11-0.20	31	51.67
0.21-0.30	4	6.67
Total	60	100
Mean of interest rate = 0.12% per year		

Source: Field Survey Data, 2016

The mean value of interest rate charged was 0.12% per year by microfinance banks to small-scale cassava-based farmers in the study area. It implies that small-scale cassava-based farmers received the available farm credit at the interest rate that would influence them to be in the business and generate income to repay the loan.

4.2.5 Other Transaction Costs (eg: Transportation, Phone calls etc.)

The distribution of respondents according to the other transaction costs is presented in Table 4.14. The table shows that 75% of respondents were in the class interval of 1,000-10,000 on the other transaction costs. The table shows that 13.33% and 6.67% of the respondents were in the class intervals of 11,000-20,000 and 21,000-30,000 on the other transaction costs respectively. The table also shows that 5% of small-scale cassava-based farmers were in the class intervals of 31,000-40,000 on the other transaction costs. The mean amount of

the other transaction costs was ₦9,833.33 for small-scale cassava-based farmers in the study area.

Table 4.14: Distribution of Respondents According to other transaction costs

Other Transaction costs (₦)	Frequency	Percentage
1,000-10,000	45	75.00
11,000-20,000	8	13.33
21,000-30,000	3	5.00
31,000-40,000	4	6.67
Total	60	100
Mean of other transaction costs = ₦9,833.33		

Source: Field Survey Data, 2016

According to Nweze (1991), for a farmer to derive benefits from any institutional credit, the size of the loan is very important. Ceteris paribus, the higher the other transaction costs the lower the amount of credit that may be demanded by small-scale cassava-based farmers in the study area.

4.3 Factors Influencing Amount of Credit Demanded by Small-Scale Cassava-based Farmers from the Microfinance Banks.

Factors influencing amount of credit demanded by small-scale cassava-based farmers from the microfinance banks were determined by fitting four functional forms of the multiple regression model to the data. The results of the

multiple regression analysis were presented in Table 4.15. The results show that the double-log function gave the best result having produced the highest value of coefficient of multiple determination (R^2), highest number of significant variables and conformed to *a priori* expectation, and was therefore, selected as the lead equation and used for discussion. The coefficient of multiple determination (R^2) was 0.7316, which implies that about 73% of the variation in farmers demand for credit was accounted for by the joint action of the independent variables included in the multiple regression model. The R^2 value produced the F-value of 17.8696 which was significant at 1% level, implying that the model gave a good fit to the data.

The coefficients of level of education(X_1), farm size (X_4) transaction cost(X_5), collateral (X_6) and distance from home to the bank (X_7) were significant at 1% level, and the coefficients of farming experience(X_2) and cost of credit(X_3) were significant at 5% level, which implies that these variables were the factors influencing amount of credit demanded by small-scale cassava-based farmers from the microfinance banks. The coefficient of household size (X_8) and marital status were not significant at 5% level, implying that these variables were not factors influencing amount of credit demanded by small-scale cassava-based farmers from the microfinance banks.

The coefficient of level of education(X_1) was positive and significant, indicating that farmers that obtained higher levels of education demanded more credit than the farmers that had low levels of education. The positive value of X_1

Table 4.15 Results of Multiple Regression Analysis on Factors Influencing Amount of Credit Demanded by Small-Scale Cassava-based Farmers from the Microfinance Banks. (n=60)

Explanatory Variables	Linear	Semi-Log	Double-Log	Exponential
Constants	312.449	268.301	211.503	187.112
Level of Education (X ₁)	14.006 (3.167)**	3.126 (1.522)	0.075 (3.549)**	0.008 (2.713)**
Farming Experience(X ₂)	11.391 (2.534)*	2.602 (1.913)	0.068 (2.547)*	0.005 (2.498)*
Cost of credit (X ₃)	-10.422 (-1.839)	-3.166 (-2.561)*	-0.092 (-2.553)*	-0.007 (-2.532)*
Farm Size (X ₄)	12.816 (1.665)	2.877 (1.849)	0.071 (3.006) **	0.006 (2.813) **
Transaction Cost(X ₅)	-10.722 (-2.555)*	-3.095 (-3.112) **	-0.099 (-4.103) **	-0.005 (-2.493)*
Collateral (X ₆)	13.106 (1.849)	2.853 (1.726)	0.075 (3.155) **	0.008 (1.877)
Distance from home(X ₇)	-10.894 (-1.707)	-4.307 (-1.622)	-0.081 (-3.928)**	-0.007 (-3.103) **
Household size(X ₈)	11.316 (1.869)	3.118 (1.433)	0.088 (1.912)	0.006 (1.743)
Marital status(X ₉)	10.344 (1.753)	2.097 (1.842)	0.066 (1.529)	0.008 (1.743)
R ²	0.4931	0.4036	0.7316	0.6133
F-value	6.3708**	4.4401**	17.8696**	10.3973**

Figures in parentheses are t-ratios, * significant @ 5%, ** significant @ 1%

(0.075) implies that a unit increase in the level of education results to 7.5% increase in the amount of credit demanded by small-scale cassava-based farmers

from microfinance banks. Acquiring good level of education by small-scale cassava-based farmers will enable them to understand the policies and procedure of demanding credit from microfinance banks in the study area. The finding is in consistent with the finding of Arvai and Toth (2001) that acquiring good education influences the decision to participate in formal credit schemes. It implies that farmers who are literate can read and make better applications to the banks than those who are illiterate.

The coefficient of farming experience (X_2) was positive and significant, implying that farmers that acquired more farming experience demanded for more credit than the new entrants into the farming business. The positive value of X_2 (0.068) indicates that more farming experience has a direct relationship with the amount of credit demanded. Therefore, a unit increase in the farming experience leads to 6.8% increase in the amount of credit demanded by small-scale cassava-based farmers in the area. It also implies that with farmers' good experience, microfinance banks may consider them that they have the capacity to withstand any climatic variability against their farm production more than the new entrants whose skills are more limited in the business. This finding also agrees with the finding of Ohajianya and Onyeweaku (2003) on the level of experience and amount of credit demanded by the farmers.

The coefficient of cost of credit (X_3) was negative and significant, implying that higher cost of credit by the banks lead to lower amount of credit demand by farmers. The negative value of X_3 (-0.092) indicates an inverse relationship with

the amount of credit demanded by small-scale cassava-based farmers. A unit increase in the cost of credit leads to 9.2% decrease in the amount of credit demanded from microfinance banks. Hence, increasing the cost of credit by microfinance banks will affect the decision of the farmers in demanding for farm credit.

The coefficient of farm size (X_4) was positive and significant, implying that farmers that have large farm sizes demand for more credit than farmers that have small farm size. The positive value of X_4 (0.071) implies that a unit increase in the farm size leads to 7.1% increase in the amount of credit demanded by small-scale cassava-based farmers from microfinance banks. It also implies that the larger the farm size, the larger the amount of credit demanded by the farmers. This finding also agrees with the findings of Amanze, *et.al* (2010). The coefficient of transaction cost (X_5) was negative and significant, implying that high transaction cost incurred by farmers leads to low credit demand by the farmers. The negative value of X_5 (-0.099), implies that a unit increase in the transaction cost will result to 9.9% decrease in the amount of credit demanded by small-scale cassava-based farmers in the study area. It also means that high transaction cost may be disincentive to farmers' willingness to participate in the loan scheme.

The coefficient of collateral (X_6) was positive and significant, which implies that possession of required collateral by the farmers lead to increase in amount of credit demanded by the farmers. The positive value of X_6 (0.075) implies that a

unit increase in the collateral leads to 7.5 increase in the amount of credit demanded by small-scale cassava-based farmers in the area. The implication shows that possession of more collateral leads to the number of times in which credit may be demanded. The finding agrees with the finding of Okojie *et.al*, (2010) where financial institutions would demand for collateral before credit is disbursed to small-scale enterprises, otherwise, they are denied these credits because of lack of collateral.

The coefficient of distance from home to the bank (X_7) was negative and significant, implying that increase in the distance of the farmer's home to the bank leads to lower amount of credit demanded by the farmers. The negative value of $X_7(-0.081)$ indicates that increase in the distance of the farmers to the bank leads to 8.1% decrease in the amount of credit demanded by the farmers. It also implies that the probability of demanding credit from the microfinance banks by small-scale cassava-based farmers is depending on the distance from the home. The finding is consistent with the finding of Rahji and Fakayode (2009) and Ayamga *et.al*,(2006) that the closer the source, the higher the probability of the decision to demand for credit. This is because those close to the microfinance banks tend to know more about the services rendered by the banks and are most likely to demand for such services.

4.4 Determinants of the Amount of Credit Obtained by Small-Scale Cassava-based Farmers.

The Determinants of the amount of credit obtained by small-scale cassava-based farmers were obtained based on the magnitude of coefficient of multiple determination (R^2) and statistical significance of coefficients of explanatory variables of the model. The results were presented in Table 4.16, where the double log was chosen as the lead equation and used for further discussion. The multiple determination (R^2) has the coefficient of 0.7509, implies that 75% of the variation on amount of credit obtained (Y) was explained by the joint action of independent variables in the multiple regression model. The R^2 value produced F- value of 16.7537 which was significant at 1% level, implying that the model produced a good fit to the data.

The coefficients of farm income (X_2), cost of credit (X_3) household size(X_4), age (X_7), farm size(X_8) and gender (X_9) were significant at 1%, implying that these were the factors that determine the amount of credit obtained by small-scale cassava-based farmers from microfinance banks in the study area. The coefficients of collateral(X_1), education(X_5) and experience (X_6) were not significant at 5%, implying that these variables were not factors that determine the amount of credit obtained by small-scale cassava-based farmers from microfinance banks in the area. Though the amount of credit obtained was not significantly influenced by collateral, education and experience, but the

Table 4.16: Multiple Regression Analysis of Determinants of the Amount of Credit Obtained from MFBs (n=60)

Explanatory Variables	Linear	Semi-log	Double-Log	Exponential
Constant	197.0665	133.1687	103.1161	79.4026
Collateral(X ₁)	17.9314 (1.1278)	3.8827 (1.2315)	0.0924 (1.1337)	0.0043 (1.3438)
Farm Income(X ₂)	12.1426 (1.0549)	1.0841 (1.0749)	0.0613 (2.9331)**	0.0067 (3.0455)**
Cost of Credit(X ₃)	-16.5021 (-3.2785)**	-4.8216 (-1.2449)	-0.1087 (-3.4075)**	-0.0093 (-1.0449)
Household Size(X ₄)	-17.9113 (-1.1061)	-4.3603 (-4.0309)**	-0.0844 (-2.6625)**	-0.0064 (-2.7826)**
Education(X ₅)	10.5602 (1.1565)	1.5591 (1.1183)	0.0854 (1.2323)	0.0083 (1.1691)
Experience(X ₆)	12.9143 (2.5719)*	2.7029 (1.2608)	0.0712 (1.1708)	0.0077 (1.1324)
Age(X ₇)	-18.2014 (-2.5495)*	-3.8821 (-3.6575)**	-0.0712 (-3.4067)**	-0.0089 (-3.4231)**
Farm Size(X ₈)	10.0391 (1.0983)	2.5913 (1.2314)	0.0913 (2.9547)**	0.0053 (1.2927)
Gender(X ₉)	14.3385 (-1.0942)	-6.0122 (-1.1948)	-0.0885 (-3.2418)**	-0.0084 (-2.4412)*
R ²	0.4938	0.4029	0.7509	0.5731
F-value	5.4216	3.7619	16.7537	7.4915

Figures in Parentheses are t-ratios * =Significant @5 percent, **= Significant @1percent.

coefficients indicate that majority of small-scale cassava-based farmers that benefited from microfinance banks credit had collateral, attained education and had acquired good experience.

The coefficient of farm income (X_2) was positive and significant at 1%, indicating that small-scale cassava-based farmers that have higher level of farm income obtained more farm credit from microfinance banks in the area. The positive value of X_2 (0.0613) implies that a unit increase in the farm income results to 6.13% increase in the amount of credit obtained from microfinance banks. Hence, the larger the farm income the larger the amount of farm credit that small-scale cassava-based farmers will obtain from microfinance banks in the study area. This finding agrees with the finding of Nwagbo, (2004). The coefficient of cost of credit (X_3) was negative and significant at 1%, implying that high cost of credit leads to lower amount of loan obtain by small-scale cassava-based farmers. The negative value of X_3 (-0.1087) implies that a unit increase in the cost of the credit leads to 10.87% decrease in the amount of credit obtained from microfinance banks in the area.

The coefficient of household size (X_4) was negative and significant at 1%, implying that increase in the household size leads to decrease in the amount of loan obtained from microfinance banks. The negative value of X_4 (-0.0844) indicates an inverse relationship with credit obtained. It implies that a unit increase in the household size leads to 8.44% decrease in the amount of credit

obtained from microfinance banks. This is because large family size will lead to spending more money on non-farm business activities such as payment of hospital bills; children school fees, clothing and feeding.

The coefficient of age (X_7) was negative and significant at 1%, indicating that increase in the age of small-scale cassava-based farmers results decrease on the amount of credit obtained from microfinance banks. The negative value of X_7 (-0.0712) indicates that a unit increase in the age leads to 7.12% decrease in the amount of loan obtained from microfinance banks. The implication shows that the higher the age of the farmers the greater the likelihood of not obtaining credit from microfinance banks. This finding is in consistent with the findings of Balogun and Alimi (1988) that age is one of the major causes of not obtaining credit from financial institutions. This can be attributable to the fact that the older the farmers, the less innovative they become in farm activities and management.

The coefficient of farm size(X_8) was positive and significant at 1%,implying that increase on the farm size of small-scale cassava-based farmers leads to increase on the amount of loan obtained from microfinance banks. The positive value of X_8 (0.0913) indicates that a unit increase in the farm size results to 9.13% increase in the amount of credit obtained from microfinance banks in the area. The coefficient of gender (X_9) was negative and significant at 1%, indicating that increase by female cassava-based farmers leads to decrease on amount of credit obtained from microfinance bank in the study area. The

negative value of X_9 (0.0885) implies that a unit increase by female cassava-based farmers leads to 8.85% decrease in the amount of credit obtained from microfinance banks. This finding may imply that women control few assets, and cultivate small farm land with low productivity.

4.5. Uses of Loan Obtained by Small-Scale Cassava-based (Major uses of the loan)

The distribution of respondents according to major uses of loan obtained is presented in Table 4.17. The table shows that 70% of the respondents used the loan obtained from microfinance banks for farming activities. The table also showed that 11.67% and 10% of small-scale cassava-based farmers used the loan for consumption and other businesses, such as trading respectively. It also showed that 8.33% of the respondents used the loan obtained for school fees of their children. It implies that majority of the respondents used the loan for cassava farming and other respondents used it for other purposes in the area.

Table 4.17: Distribution of Respondents According to Uses of Loan Obtained (Major uses of the loan)

Uses of loan	Frequency	Percentage
Farming	42	70
School fees	5	8.33
Consumption	7	11.67
Other businesses (Trading)	6	10
Total	60	100

Source: Field survey data, 2016

The implication indicates that the amount of loan diverted for other activities may result in defaults in the loan repayment in the area. The finding agrees with the findings of Henri-Ukaoha, *et.al* (2011), that farmers in Ohafia utilized their loan for agricultural activities as the rate of diversion was 12% in the area.

4.6. Repayment Performance of Small-Scale Cassava-Based Farmers

The repayment of the amount of loan obtained from microfinance banks indicates the rate of performance of small -scale cassava-based farmers in the study area and the results of the data collected were presented as follows:

4.6.1. Period of Loan Repayment

The distribution of respondents according to period of repayment is presented in Table 4.18. The table shows that 80% of small-scale cassava-based farmers were within the class interval of 1-12 months period of repayment.

Table 4.18: Distribution of Respondents According to Period of Loan Repayment

Period of loan repayment (Months)	Frequency	Percentage
1-12	48	80
13-24	12	20
Total	60	100

Mean of period of loan repayment= 11.9 months

Source: Field survey data, 2016

The table also shows that 20% of the respondents were in the class interval of 13-24 months period of repayment. The mean value of period of loan repayment was 11.9 months. This implies that majority of small-scale cassava-based farmers used the loan for cassava farming and repaid the loan within 11.9 months in a year. The result suggests that cassava farming is a good enterprise where the output could cover the cost within one year.

4.6.2. Amount of Loan Repaid

The distribution of respondents according to amount of loan repaid is presented in Table 4.19. The table shows that 50% of the respondents were in class interval of 101,000-200,000 on the amount of loan repaid. The table also showed that 41.67% and 6.67% of small-scale cassava-based farmers were in the class intervals of 1000-100,000 and 201,000-300,000 on the amount of loan repaid respectively.

Table 4.19: Distribution of Respondents According to the Amount of Loan Repaid.

Amount of loan repaid (₦)	Frequency	Percentage
1,000-100,000	25	41.67
101,000-200,000	30	50
201,000-300,000	4	6.67
301,000-400,000	1	1.67
Total	60	100
Mean of Amount Loan Repaid	₦118,833.33 per year	

Source: Field survey data, 2016.

The mean value of amount of loan repaid by small-scale cassava-based farmers was ₦118,833.33 per year. This suggests that small-scale cassava-based farmers that used the loan for cassava farming returned the loan within one year in the area. The finding is in line with the finding of Okerenta (2005) that a high repayment performance has a potential of boosting enterprise development in the rural sector of economy.

4.6.3. Repayment Performance

The percentage of loan repaid by small -scale cassava-based farmers was 93.6%. This shows that majority of small- scale cassava-based farmers that used the loan for cassava farming resulted to high repayment rate in the area. The finding is in line with the findings of Nwosu, *et.al* (2014), on the analysis of loan repayment performance of livestock farmers in the southeast of Nigeria where the loan repayment was 90.1%. It also suggests that encouraging these farmers will result to more high repayment rate in the study area.

4.7. Determinants of Amount of Loan Repaid by Small-Scale Cassava-Based Farmers

The determinants of amount of loan repaid by small-scale cassava-based farmers from microfinance banks were determined by fitting the four functional forms to the data. The results were presented in Table 4.20, where exponential functional form was chosen as the lead equation and used for further discussion. The coefficient of multiple determination (R^2) was 0.8344, implies that 83% of the variation of explanatory variables explained the amount of loan repaid (Y) by

small-scale cassava-based farmers in the area. The (R^2) value produced F-value of 32.0923 which was significant at 1% level, implies that the model gave a good fit to the data.

The coefficients of education (X_4), farm income (X_6) and farm size(X_8) were significant at 1% level, while amount of loan borrowed (X_1), cost of credit (X_2), household size (X_3) and farming experience (X_5) were significant at 5% level, implying that these variables were the factors that determine the amount of loan repaid to microfinance banks by small- scale cassava-based farmers in the area. The coefficient of age was not significant at 5%, implying that this variable was not factor that determine the amount of loan repaid to microfinance banks by small-scale cassava-based farmers in the area.

The coefficients of amount of loan borrowed (X_1) was positive and significant at 5%, indicating that increase on the amount of credit borrowed leads to increase in the amount of loan repaid and thereby record high repayment performance. The positive value of X_1 (0.0058) indicates a direct relationship between the amount of loan borrowed and amount of loan repaid by small-scale cassava-based farmers. The implication shows that a unit increase in amount of loan borrowed results to 0.58% increase in the amount of loan repaid. Hence, increase in the amount of loan borrowed by small-scale cassava-based farmers will result to adoption of improved varieties of cassava and other

agricultural technologies and thereby increase the cassava output and income of the farmers.

Table 4.20: Multiple Regression Analysis of Determinants of Amount of Loan Repaid to MFBs.(n=60)

Explanatory variables	Linear	Semi-log	Double-Log	Exponential
Constant	251.0092	206.5209	189.4447	140.3108
Amount Borrowed(X ₁)	10.5021 (1.1669)	4.0874 (1.0447)	0.0861 (3.9677) **	0.0058 (2.4091)*
Cost of Credit (X ₂)	-23.0742 (-1.0761)	-3.8819 (-1.2634)	-0.0917 (1.1335)	-0.0092 (-2.1905)*
Household Size(X ₃)	-12.5902 (-1.1444)	-2.5431 (-1.2336)	-0.0741 (-1.2167)	-0.0074 (-2.5517)*
Education(X ₄)	17.0684 (3.3149)**	7.0339 (3.4292) **	0.0944 (3.0749) **	0.0082 (3.0371) **
Experience(X ₅)	15.4392 (1.0937)	3.0555 (1.4489)	0.0382 (1.3692)	0.0067 (2.3929)*
Farm Income(X ₆)	19.5556 (2.8715)**	3.5442 (3.5396)**	0.0921 (2.9903)**	0.0073 (2.6071)**
Age(X ₇)	-17.0993 (-3.3497)**	-3.0965 (-1.0774)	-0.0674 (-2.3322) **	-0.0095 (-1.1728)
Farm Size(X ₈)	10.8911 (1.2055)	1.6015 (1.3242)	0.0887 (3.6502) **	0.0088 (2.8387) **
R ²	0.4709	20.6514	0.6033	0.8344
F-value	5.6599	4.1239	9.6683	32.0923

Figures in Parentheses are t-ratios * =Significant @5 %, **= Significant @1%.

The finding is consistent with the finding of Afolabi, (2010), increasing the volume of loan given to beneficiaries may enable farmers to adopt agricultural innovations and leads to increase in the level of income and loan repayment.

The coefficient of cost of credit (X_2) was negative and significant at 5%, implying that increase on the cost of credit results to decrease in the amount of loan repaid by small-scale cassava-based farmers to microfinance banks in the study area. The negative value of X_2 (0.009) implies that a unit increase in the cost of the credit leads to 0.9% decrease in the amount of loan repaid by small-scale cassava-based farmers in the area. The coefficient of household size (X_3) was negative and significant at 5%, which implies that increase on the household size leads to decrease in the amount of loan repaid and results to poor loan repayment performance. The negative value of X_3 (-0.0074) indicates an inverse relationship with loan repayment capacity of small-scale cassava-based farmers in the area. A unit increase in the household size leads to 0.74% decrease in the amount of loan repaid to microfinance banks in the study area. This is because, large family size will lead to spending more money on non-farm business activities such as payment of hospital bills, and children school fees, clothing and feeding. These will place much economic burden and stress on the shoulders of household heads which may result to default in loan repayment. The finding is consistent with the findings of Oladeebo and Oladeebo(2008) where family size has a negative influence on the loan repayment ability of the farmers. It also

collaborates with the findings of Ojiako and Ogbukwa (2012), increase in the household size results to decrease in the repayment capacity of the farmers.

The coefficient of education (X_4) was positive and significant at 1%, indicating that increase in the education attainment of small-scale cassava-based farmers, results increase in the repayment of loan borrowed from microfinance banks. The positive value of X_4 (0.0082) indicates a direct relationship with the amount of loan repaid. A unit increase in the education of small-scale cassava-based farmers' results to 0.82% increase in the amount of loan repaid. With increase in education the farmers will be in a position to adopt improved technology in the farm practices, thereby lead to increase in the output, net farm income and repayment of the loan. This is in consistent with the finding of Obasi *et.al*, (2015) that increase in the level of education attainment will lead to adoption of new production technology.

The coefficient of experience (X_5) was positive and significant at 5%, which implies that increase in the experience of small-scale cassava-based farmers leads to increase on the amount of loan repaid to microfinance banks. The positive value of X_5 (0.0067) indicates that higher years of experience by the farmers give them better opportunity to tackle farm production problems and repaid the loan obtained from microfinance banks. A unit increase in the farming experience leads to 0.67% increase on the amount of loan repaid by small-scale cassava-based farmers. The finding is consistent with the findings of Orebiyi,

et.al,(2012) that the higher the farmer's farming experience, the higher his knowledge to tackle farm production problems and the higher his output.

The coefficient of farm income (X_6) was positive and significant at 1%, indicating that increase in the farm income leads to increase in the amount of loan repaid to microfinance banks in the area. The positive value of X_6 (0.0073) indicates a direct relationship between farm income and loan repayment. A unit increase in the farm income results to 0.73% increase in the loan repayment performance of the beneficiaries of microfinance banks credit. This finding agrees with the findings of Onyenucheya and Ukoha (2007) that high farm income implies enough money to meet family needs and also to meet loan repayment agreement. The coefficient of farm size(X_8) was positive and significant at 1%, implying that increase in the farm size of small-scale cassava-based farmers, results increase in the amount of loan repaid to microfinance banks. The positive value of X_8 (0.0088) indicates a direct relationship between the farm size and the amount of loan repaid by small-scale cassava-based farmers in the study area. A unit increase in the farm size results to 0.88% increase in the amount of loan repaid by small-scale cassava-based farmers in the study area.

4.8. Test of Hypotheses

4.8.1. Hypothesis I

To test hypothesis i, which stated that socio-economic characteristics of small -scale cassava-based farmers have no significant effect on amount of credit

obtained from microfinance banks, the multiple regression analysis was performed. From Table 4.16, the calculated t-ratios for socio-economic characteristics showed that the coefficients of farm income(X_2), cost of credit(X_3), household size(X_4), age(X_7), farm size(X_8) and gender(X_9) were statistical significant at 0.01 level, while the coefficients of collateral(X_1), education(X_5) and experience (X_6) were not significant at 5% level. Therefore the hypothesis i was rejected with respect to the significant variables, and accepted with respect to the non-significant variables.

4.8.2. Hypothesis II

To test hypothesis ii, which that stated Socio-economic characteristics of farmers' loan repayment have no significant effect on the amount of credit repaid to microfinance banks, the multiple regression analysis was performed. From Table 4.20, the calculated t-ratios for amount borrowed(X_1), cost of credit(X_2) household size(X_3), education(X_4), experience(X_5), farm income(X_6), age(X_7) and farm size(X_8) were statistical significant at either 5% or 1% levels, while the coefficient of age (X_7) was not significant at 5% level. Therefore, hypothesis ii was rejected with respect to the significant variables and accepted with respect to the non-significant variables.

4.8.3. Hypothesis III

To test hypothesis iii, which stated that there are no significant differences in amount of credit demanded by small-scale cassava-based farmers from the

microfinance banks in the three agricultural zones of Imo State, the analysis of the variance was performed. The ANOVA result presented in Table 4.21 produced F- value of 1.92 which was not significant at 5% when compared with F-critical value of 3.14 for $V_1=2$, $V_2 =57$ degree of freedom.

Table 4.21: Results of Analysis of Variance on

Test of significant differences in amount of credit demanded by small-scale cassava-based farmers from MFBs in the three agricultural zones of Imo State.

Sources of Variation	SS	DF	MS	F-cal	F.05
Between Credit Demand	629938	2	314969	1.92 ^{ns}	3.14
Within Credit Demand	9341779	57	163891		
Total	9971717	59			

ns= F-cal not significant @5% level

Therefore, hypothesis iii was accepted since there were no significant differences in the amount of credit demanded by small-scale cassava-based farmers from the microfinance banks in the three agricultural zones of Imo State.

CHAPTER FIVE

5.0 SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary

The objective of this study was to analyze small-scale cassava-based farmers' demand and utilization for microfinance banks credit in Imo State, Nigeria. The specific objectives were to examine the socio-economic characteristics of small-scale cassava-based farmers; determine the amount of credit demanded and obtained by small-scale cassava-based farmers; determine the factors influencing amount of credit demanded by small-scale cassava-based farmers from microfinance banks; estimate the determinants of amount of credit obtained by small-scale cassava-based farmers; ascertain the uses of credit obtained by small-scale cassava-based farmers and estimate the determinants of amount of loan repaid by small-scale cassava-based farmers in Imo State.

The study was conducted in the three agricultural zones of Imo State. Random samples of 60 respondents were selected using multi-stage random sampling techniques. Data were collected using structured questionnaire. Data were analyzed using descriptive statistical tools such as frequency tables, mean and percentage. Ordinary least square multiple regression technique was used to analyze the factors influencing amount of credit demanded, amount of credit

obtained and amount of loan repayment by small-scale cassava-based farmers in the study area.

Results show that, on the average, a farmer in the study area was 49 years old, where 51.67% and 48.33% were male and female farmers respectively. Majority of the farmers were married and had household size of 8 persons and then spent 13 years in education attainment. These farmers had long farming experience of 16 years and cultivated farm land area of approximately 0.67 hectare and practiced farming as their major occupation in the area.

The results of the data collected show that the mean values of household farm income per month, amount of credit demanded and amount of loan obtained were ₦20,625, ₦268,000 and ₦109,675 respectively. The mean cost of credit was ₦14,666.67 per farmer with the interest rate of 12% per year and 70% of the loan obtained was used for cassava farming activities. These farmers repaid the loan within 11.9 months in a year in the mean value amount of ₦118,833.33. The repayment rate of the farmers was 93.6% for the loan borrowed from microfinance banks in the study area.

The results of the multiple regression model on the factors influencing the amount of credit demanded by small-scale cassava-based farmers from microfinance banks indicate that the coefficients of level of education(X_1), farm size (X_4) transaction cost (X_5), collateral (X_6) and distance from home to the bank (X_7) were significant at 1% level, and the coefficient of farming

experience (X_2) and cost of credit (X_3) were significant at 5% level. This implies that these variables were the factors influencing amount of credit demanded by small-scale cassava-based farmers from the microfinance banks in the study area.

The results of the multiple regression model on the determinants of amount of loan obtained from microfinance banks by small-scale cassava-based farmers show that the coefficients of farm income (X_2), cost of credit (X_3) household size (X_4), age (X_7), farm size (X_8) and gender (X_9) were significant at 1%, implying that these were the factors that determine the amount of credit obtained by small-scale cassava-based farmers from microfinance banks in the study area.

The results of the multiple regression model on the determinants of amount of loan repaid to microfinance bank indicate that the coefficients of education (X_4), farm income (X_6) and farm size (X_8) were significant at 1% level, while amount of loan borrowed (X_1), cost of credit (X_2), household size (X_3) and farming experience (X_5) were significant at 5% level, implying that these variables were the factors that determine the amount of loan repaid to microfinance banks by small-scale cassava-based farmers in the area.

The hypotheses tested showed that there were significant effects on the amount of credit obtained and repaid to microfinance banks in the study area. The ANOVA results show that there were no significant differences on the

amount of credit demanded by small-scale cassava-based farmers in the three agricultural zones of Imo State.

5.2 Conclusion

This study on analysis of small-scale cassava-based farmers demand and utilization for microfinance banks credit in Imo State, Nigeria, shows that small-scale cassava-based farmers have obtained farm credit from microfinance banks in the area. Although the mean amount of credit received was below the mean amount of credit demanded. The repayment performance of small-scale cassava-based farmers was high. The study indicates significant variables that influenced the amount of credit demanded, obtained and repaid by small-scale cassava-based farmers from microfinance banks in the study area.

5.3. Recommendations

Based on the findings, the following recommendations were made

1. The study shows that small-scale cassava-based farmers accessed loan from microfinance banks in the state. Encouraging farmers could make more investment and contribute in fighting for food security in the state.
2. The government should package farm credit well in order to accommodate all cassava-based farmers.
3. Farm size plays an important role in determining the amount of credit demanded, obtained and repaid. Government should acquire more farm land

through the operation of land use act and allocate more land for cassava –based farmers in order to ensure access to loan, increase production and to maintain high repayment performance.

4. Cost of credit has a negative effect on the amount of credit demanded, obtained and repaid. Government should devise means to assist cassava-based farmers in terms of the cost of credit or devise means to reduce the cost of credit in order to ensure food security in the State.

5. Microfinance banks should consider these determinants of credit access whenever they want to carry out a successful loan scheme.

6. Policy makers should make policies that targeted towards filling the gap on the amount of credit demanded and obtained by small-scale cassava-based farmers from microfinance banks in Imo State.

5.4 Contributions to Knowledge

Based on the findings of this study, the following contributions to knowledge were made;

1. The study has shown determinants of access to credit by small-scale cassava-based farmers in Imo State of Nigeria.

2. There is also high rate of repayment by small-scale cassava-based farmers. This high rate of repayment should encourage microfinance banks to improve their credits to these farmers and thereby increase cassava output in the State.

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APPENDIX

4.6.3. Repayment Performance of Small-Scale Cassava-Based Farmers

$$RR = \sum_{i=1}^n \frac{Ai}{Tr}$$

$$RR = \frac{9390000 * 100}{10,027,145 \quad 1}$$

$$RR = \frac{0.936 * 100}{1}$$

$$RR = 93.6\%$$