EFFECT OF MICROFINANCE SERVICES ON PERFORMANCE OF SMALL HOLDER RICE FARMERS IN NIGER STATE

BY

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P15ADBA8010

A DESSERTATION SUBMITTED TO THE SCHOOL OF POSTGRADUATE STUDIES, AHMADU BELLO UNIVERSITY, ZARIA IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF MASTER OF SCIENCE (M.Sc.) IN RURAL FINANCE AND ENTREPRENEURSHIP,

INTERNATIONAL CENTER OF EXCELLENCE FOR RURAL FINANCE AND ENTREPPRENEURSHIP (ICERFE),

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SEPTEMBER, 2018

DECLARATION

I declare that this dissertation titled '*Effect of Microfinance Services on Performance of Small Holder Rice Farmers in Niger State* has been carried out by me under the supervision of Dr. Nasiru Abdullahi and Dr. O. D. Y. Malachy in the Department of Business Administration. The information derived from the literature has been duly acknowledged in the text and a list of references provided. No section of this dissertation was previously presented for another degree or diploma in this institution or other institution. I take the sole responsibility of all errors there in.

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CERTIFICATION

This dissertation entitled *Effect of Microfinance Services on Performance of Small Holder Rice Farmers in Niger State* by David Danjuma ZHIRI meets the regulation governing the award of Master of Science (M.Sc.) Degree in Rural Finance and Entrepreneurship of Ahmadu Bello University, and is approved for its contribution to knowledge and literary presentation.

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DEDICATION

This dissertation is dedicated to the glory of my Lord and Savior Jesus Christ that preserved my life till this present moment and saw me through my academic pursuit.

ACKNOWLEDGEMENTS

My sincere and profound gratitude goes to my Lord and Savior for making this journey a successful one for me.

I am very grateful to my supervisors, Dr. Nasiru Abdullahi and Dr. O. D. Y. Malachy for their support, patience and valuable guidance through the successful completion of this thesis. I also want to acknowledge the Deputy Director of International Centre for Excellence in Rural Finance and entrepreneurship in person of Maimuna Aliyu Shika for her immense and ceaseless effort in supporting and encouraging me.

My sincerest gratitude also goes to my late parents; Mr Theophilus Zhiri and Mrs Elizabeth Zhiri of blessed memory for their inspiration and tireless effort in ensuring i succeed in life. Also, my special appreciation goes to my siblings; Mr. Nehemiah Baba Zhiri, Miss Mary Asabe Zhiri for their patience and encouragement. My warmest thanks go to Miss Queen E. Ogbobame for her prayers, support and encouragement. My special gratitude also goes to Mr and Mrs Enoch Abu, Pastor Dare Akintude, Francis Saba Jiya, Abel Jibril Gana, Kayode Obamero, for their support in making this research dissertation a success.

I also want to appreciate the staff of Modiya Microfinance bank, Kontagora Microfinance bank and Suleja Microfinance bank for their patience and assistance in ensuring I get the appropriate information I needed. I also extend my gratitude to Egwagan rice farmer cooperatives Bida, Success rice farmer's cooperatives Paiko and Godiya rice farmer cooperatives Wushishi for their cooperation, support and commitment during the course of this study.

Finally, my special gratitude also goes to my colleagues in class: Sani Aliyu Abubakar, Jeremiah Ogundare, Judith Gogwe Dorcat, Mustapha Taufiq, Tanimu Shehu Musa, Excel, Asiya Tanimu, Ijanada Fidelis, Alh. Muhammad Mangu, Alice Yamusa, Mall. Muhammad Yazeed, and the

entire 2015 class of M.Sc. Rural Finance and Entrepreneurship for their support, assistance and advices both academically and morally.

Abstract

Nigeria's enormous land area under rice cultivation is not augmenting self-sufficiency which has prompted frequent importation of rice into the country. Niger state remains a major rice producer in the country; however, despite being a major rice hub, small holder rice farmers are faced with several setbacks impeding their performance among which are financial services. It was on this note that this study investigated the effects of microfinance services on the performance of small holder rice farmers in Niger state. The study adopted a survey research design. A sample of 179 rice farmers registered with different cooperatives and transact with three different Microfinance banks were randomly selected from three Senatorial zones with largest rice producing local governments of Niger state. Primary data was collected through questionnaires. Regression analysis was used to analyze the data with the aid of SPSS Version 20. The study revealed that microcredit and entrepreneurial skills training exerted a positive significant effect on small holder rice farmer's performance. The study further revealed that microsavings have a negative significant effect on small holder rice farmer performance. It was recommended that, deliberate attempt must be made by microfinance institutions (MFIs) to continue to appraise their financial services in terms of reduction on interest rate on loans, encourage personal savings rather than group cooperatives savings which will foster reinvestment to the bank and continue to provide entrepreneurial training for small holder farmers. This will better improve performance of the agricultural base particularly in rice production not only to cushion production demand, but export as well.

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CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

The performance of the agricultural sector in developing countries is important to fight food security and poverty reduction efforts since a large number of poor people live in rural areas and they depend on agriculture for their economic activities. They are also the source of food for the urban populace and the supplier of raw materials for industries. In developed countries; small agricultural producers are entrepreneurs, traders, investors, and manufacturers (Gashayie & Singh, 2015). In all these roles, small agricultural households constantly seek to use available financial instruments to improve their performance and secure the best possible investment choices.

In many African countries including Nigeria, the agricultural sector is dominated by small holder farmers. They engage in subsistence agriculture and accounts for more than 90% of the nation's agricultural output; they cultivate less than 2 hectares of farm land (World Bank, 2008 in Kuye, 2015). Rice is the most strategic food crop in West Africa because of its contribution to food security of the populations and its impact on the economy of households and countries (Akwaa-Seck, 2013; FAO, 2011). Rice farming is predominately done by small holder farmers across Nigeria in small production quantity that usually lack financial capacity to produce in larger quantity.

Indeed, studies have shown that financial services play a crucial role in agricultural production (Honlonkou, Acclassato, & Kokou, 2005; Simtowe, Diagne, & Zeller, 2009; Asfaw, Kassie, Simtowe, & Lipper 2012). However, Small holder farmers have continued to face inadequate access to financial services, and where these services are made available, they are often at very

high cost (Philip, Nkonya, Pender & Oni 2009; Okojie, Monye, Eghafona, Osaghae & Ehiakhamen 2010). According to Abebe (2005) the lack of financial resources tailored for small holder farming has limited their capacity to produce. This has led to high food import bills, lingering food insecurity, escalating social vices of insustainability of the national resource base (Mbah, 2001).

According to Jirgi, Usman, Tanko and Ibrahim (2007), Nigeria government has initiated more encompassing credit and non-credit programs for small holder rice farmers. For instance, the Presidential Initiative on Increased Rice Production, the Nigerian National Rice Development Strategy. However, despite agricultural schemes introduced by the government in the country in a bid to boost rice production, this dream has remained elusive (Okoronkwo & Anozie 2007). Small holder rice farmers still lack proper financial and non financial facilities to increase their performance in terms of output in yield, farm profit, income, growth and standard of living. The inadequacy to meet the country's rice consumption demand has created a huge demand supply problem (Monitoring African Food and Agriculture Policy, 2013).

The consumption of rice in Nigeria has grown rapidly over the past decade. According to Nkwazema (2016), Nigeria consumes 7 million metric tonnes of rice annually. More so, only 2.7 million metric tonnes is produced by farmers annually in Nigeria, which leaves a supply demand gap of 4.3 million metric tonnes to be cushioned by importing (Nkwazema 2016). Nigeria has a 49 percentage self sufficiency ratio (Monitoring African Food and Agriculture Policy, 2013). Rice is the most consumed staple food by Nigeria's over 174 million people across states and geo-political zones (Terungwa & Yuguda, 2014). At this rate per capita consumption rate of rice is 27 killogrammes per year at 460 dollars per metric tonnes. This has lead to increase in rice importation annually to fill demand gap which arose as the inability of rice farmers to meet

demand. Studies have shown that formal financial institutions located in rural areas for small farmers help increase agricultural production (Myer, 2007; Ayegba & Ikani, 2013).

Providing cheap financial service to poor small holder farmers through microfinance institutions (MFIs) has been considered as a tool for improving the performance of small holder farmers. MFIs provide small amount of financial capital to certain target groups with a loose condition (Bhatt & Tang 2002). MFIs also provide various complementary programs, including training and guidance, entrepreneurship and self-motivation for the development of the target cooperative groups through economic activity (McKernan, 2002). There is a renewed interest, from MFIs in cooperative producer organizations as an institutional vehicle to improve small holder agricultural performance (Bernard & Spielman, 2009; Fischer & Qaim, 2012a; 2012b).Cooperative producer are beneficial to small holder farmers by reducing transaction costs in input and output markets and improving bargaining power vis-à-vis buyers (Markelova, Meinzen-Dick, Hellin, Dohrn 2009; Bernard & Taffesse, 2012). When small holder farmers organize themselves in cooperatives, they gain group access to microcredit and other financial services and engage them in entrepreneurial activities.

Microcredit as a financial service may enable small marginal farmers purchase inputs like fertilizers, pesticides, tractors among others they need to improve their performance as well as financing a range of activities adding value to agricultural products (Menon, Noonari, Sharh, Peerzado, Panhwar, Sethar, Kalwar, Bhatti & Jamro 2015). Microcredit availability encourages diversified agriculture which stabilizes and increases size of farm operations and resource productivity (Odiase 2004).

Access to savings facilities also plays a key part in allowing small farmers smoothen their consumption expenditures and in financing investments which improves their performance. Small holder farmers usually depend on seasonal rainfall for plantations. The vagaries of weather sometimes make them loose their crops before harvesting. Microsavings usually serve as insurance cover for small farmers as they could plough back their savings into their farm in case of natural disasters.

Entrepreneurial Skills means knowledge in practice. It refers to the practical application of knowledge in performing function. It offers opportunity to learn basic skills related to earning, spending, budgeting, saving, risk taking, innovativeness and borrowing (Cohen & Sebstad, 2003). According to Campuzano, Moreno, and Morgan (2012), entrepreneurial skill training significantly raises individuals' productive incomes, farmers with some form of entrepreneurial training are more likely to apply for loans from more formal sources, take calculated risks and organize their farms (Institute of Statistical, Social and Economic Research 2010).

Given the several problems faced by small holder rice farmers, their importance to the food security of the country deserves huge attention. It was thus imperative to examine if the services of microfinance institutions can improve small holder rice farmers performance. Therefore this study examined the relationship between microfinance services of microcredit, microsavings and entrepreneurial skill training on performance of small holder rice farmers in Niger State.

1.2 Statement of the Problem

Agriculture plays a cardinal role in Nigeria's economy contributing the greatest share to the nation's gross domestic product (GDP). For instance, 2016 agriculture's contribution to total real GDP was 42.07 percent with crop, livestock, forestry and fishery accounting for 37.52, 2.65,

1.37 and 0.53 percent respectively (National Bureau of Statistics, 2016). This implies that the crop sub-sector contributed 83.67 percent of agriculture GDP. Further, agriculture generates employment for over 70 percent of the total labour force, accounts for about 60 percent of the non-oil exports and, perhaps most important, provides over 80 percent of the food needs of the country (Adegboye, 2004; Onwuemenyi, 2008; CBN, 2015). Despite these indicators, rice production in recent times remains inadequate and indeed far less than its demand. Rice demand exceeds the supply thus leading to large importation of rice, which further erodes the economies foreign exchange. According to Federal Ministry of Agriculture and Rural Development, Nigeria spends 365 billion naira on rice importation annually (FMARD 2014). Emefiele in Adekunle (2015) reiterated that Nigeria spent 2.4 billion dollars on rice importation in 3 years from 2012 to 2015

Nigeria is importing what it can produce in abundance and import dependency is impoverishing Nigerian rice farmers, displacing local production and creating rising unemployment (Emefiele in Adekunle, 2015). Import dependency is neither acceptable, nor sustainable fiscally, economically or politically. It is however worrisome that with large arable land and determined small holder rice farmers Nigeria small holder farmers are still performing poorly at subsistence level.

The limited capacity of the Nigerian small holder rice farmers to match the domestic demand raises a number of pertinent questions both in the policy circle and amongst researchers. For instance, what factors explain why domestic rice production lags behind the demand for the commodity in Nigeria? To bridge the demand-supply gap, effort has to be channeled towards increasing farmer's performance. Theoretically, increasing farmer's performance requires either increased input use especially land expansion, improvement in resource use efficiency and or

technological change derived from use of new technologies (Andrew & Aye 2014). Given the constant population pressure and other social and economic constraints in Nigeria, farm land expansion as a source of increased performance has little application (Onoja, Ibrahim, and Achike 2009). Hence, the country is left with the option of improving performance of farmers by improving on their condition through financial services.

Microfinance services aim to help the poor generate income and are very popular which has become the favorite intervention for development in rural areas. In line with this development, Federal Government of Nigeria in 2005 gave licenses for the establishment of several micro finance institutions that offer micro-credit, micro saving and other financial and non financial services to the rural farmers, entrepreneurs, artisans (CBN 2005). However, Ibrahim and Bauer (2013), argued that despite agricultural credit schemes and licensing micro finance institutions by the government in the country in a bid to boost agricultural performance in rural areas, this dream has remained elusive.

Studies such as Myer, (2007); Adams (2010) identified lack of microfinance services as a cause of low performance by rural farmers. While rice production has being an area of policy and research debate, studies on performance of farmers have focused more on larger farmers leaving small holder farmers (Ihegboro 2014; Ayola & Oboh, 2014). Attention has been on how larger farmers can increase production output. However, studies and reports like fair-trade, 2013; IFAD and UNEP 2013; Akinsuyi 2011 have shown that small holder farmers hold the largest production propensity than the large scale farmers.

Although microfinance services were generally assumed to have positive relationship with farmer's performance, some evidence showed that this is not true. Studies aimed at establishing

the direction of relationship between microfinance and performance of farmers reported conflicting results. While Nosiru (2010); Tanko, Ajani and Adeniji (2012); Girabi and Mwakaje (2013); Nzomo and Muturi (2014) reported positive relationship, in contrast, Hulme and Mosley (1996); Diagne & Zeller (2001); Karnani (2007) showed that microfinance services have negative impact on farmers performance.

Indeed, Kinkingninhoun and Diagne (2015) assessed the impact of access to microcredit on technical efficiency of rice farmers in Senegal and showed that the impacts were negative for the small holder farmers. In the same vein, Hulme and Mosley (1996) found a positive and significant impact of microcredit for big farmers who already have a certain level of resources, income and physical assets, while the impact was negative for the small holder farmers. This study investigated these tradeoffs to study the impact of microfinance services (microcredit, microsavings and entrepreneurial skills training) on the performance of smallholder rice farmer organized in cooperatives. The study focused essentially on farmers performance, because agricultural productivity is a measure of the performance of the agricultural sector and thus provides a guide to the efficiency of the sector (Thirtle & Bach, 1993; Kirsten & Vink 2003 Thirtle, Piesse, & Gousse, 2005; and Conradie & Piesse., 2009).

Again, previous studies on microfinance and agriculture looked at two broad issues of microcredit (Nosiru, 2010, Ayegba & Ikani 2013 and Hassan, Billah, Hossen, & Mamum 2013) and microsavings (Ikechuckwu, 2006, Karlan, Savonttino, Thuysbert & Uddry 2016) while little attention has been given to entrepreneurial skills training as it affects small holder farmers performance.

Studies on the development of entrepreneurial skills in farmers are scarce, especially in developing countries like Nigeria. Although its implications in public policy have been discussed thoroughly, several dimensions of the topic deserve in-depth study, particularly: business strategies, the entrepreneurial capacities of farmers, risk management etc. Only three studies attempted testing this relationship which include; Murshed-E-Jahan, and Pemsl (2011), in their study in Bangladeshi evaluated building the capacity of small farmers through training. Similarly, a study by Tripp and Hiroshimil (2005) in Sri Lanka examined the importance of training in contributing to enhancement of farmers skills in farming works. These studies looked at technical skills training and not entrepreneurial skills training as to farmer's performance, moreover, the studies were done in Asian countries and has not been done in African countries like Nigeria. Furthermore, Al-Sharafat (2017) also looked at human capital development on performance of agricultural enterprises in Jordan, the study however focused on financial performance alone.

Conversely, Tosi and Gomez-Mejia (1994) suggested that performance should be measured with both financial and non financial measures to get a realistic measure. This study will differ from previous studies as it will not only look at financial performance of farmers but also their non financial performance in terms of their farm labour employed, market outreach for rice, investment in the farm. There was no available literature found to have tested a direct relationship between entrepreneurial skills training and small holder farmer's performance to help with the understanding of farm entrepreneurship. This therefore calls for a research to clearly investigate a direct relationship between the variables.

1.3 Research Questions

Based on the problem stated above, the following research questions were addressed in the study.

i. Does microcredit have effect on performance of small holder rice farmers in Niger state?

ii. Does micro saving have effect on performance of small holder rice farmers in Niger State?

iii. Does entrepreneurial skill training have effect on performance of small holder rice farmers in Niger State?

1.4 Objectives of the Study

The main objective of the study is to determine the effect of microfinance services on performance of small holder rice farmers in Niger state, the specific objectives include;

(i) To determine the effect of micro-credit on performance of small holder rice farmers in Niger state.

(ii) To examine the effect of micro-saving on performance of small holder rice farmers in Niger state.

(iii) To determine the effect of entrepreneurial skills training on performance of small holder rice farmers in Niger state.

1.5 Hypotheses of the Study

The hypotheses formulated are:

HO_1: Micro-credit has no significant effect on the performance of small holder rice farmers in Niger state.

HO_2: Micro-saving has no significant effect on the performance of small holder rice farmers in Niger state.

HO_3: Entrepreneurial skill training has no significant effect on the performance of small holder rice farmers in Niger state.

1.6 Significance of the Study

This research studied the effect of microfinance services on performance of small holder rice farmer's in Niger state. It is hoped that this study has clarified to individuals the importance of microfinance services on small holder farmer's performance. This will invariably assist aspiring small holder farmers when they want to establish their own farms. It will also equip the farmers with understanding of entrepreneurial skill training which will help them focus on farming as a profitable business. It will help farmers organize their farms into a business venture, which will help them innovate new ways of farming and also take calculated risks involved in farming. This will resonate with young potential farmers and will curb to a minimal the problem of unemployment.

The study is also beneficial to the Niger State Government that is aimed at making the state the largest producer of rice in Nigeria. Through the explanation on the level of farmer's performance by microfinance services, it will guide in articulating strategies in restructuring their pattern and level of support given to small holder rice farmers in the state.

The study is also beneficial to government bodies such as CBN, Federal Ministry of Agriculture, Niger State Ministry of Agriculture, MFIs and Bank of Agriculture who are in charge of the formulation and the implementation of government policies regarding farming. It will explain to them the level of small holder farmer's problem that is as a result of microfinance services so as to determine the level and pattern of their support when it comes to policy formulation and implementation. Thus, it will guide them on the formulation of policies on smallholder farmers financing options.

This study will also serve as a guide to international agencies such as African Development Bank, World Bank, FAOSTAT, and other agencies that are known for providing financial support to farming as part of their efforts towards ensuring food security in developing countries. It is made clear to them the relevance of entrepreneurial skills rather than focusing on only credit provision for farmers.

The research also provides empirical evidence on the extent and pattern of relationship through the combination of microcredit, micro savings and entrepreneurial skills training under a single model. The model showed a symbolic representation that helped the researcher explain the relationships between the independent variables (microcredit, microsavings and entrepreneurial skill training) and the dependent variable (farmer's performance). It is our belief that the study will add to literatures on microfinance. This is because no study to the best of the knowledge of the researcher has investigated the impact of microfinance services on performance of small farmers using the 3 components. In the light of this, students and researchers would find it instructive.

To expand the frontier of existing knowledge, the study empirically tested the direct impact of microfinance services as an independent variable on the performance of small farmers in Niger state. Since no previous study to the best of the knowledge of the researcher has empirically tested this relationship in the Nigeria context, this study is therefore useful. It provides empirical evidence on the relationship between the variables as it is very crucial because confidence intervals, corrected estimates and measure of variability in correlations across studies provide strong evidence about the strength and consistency of the relationship between variables.

1.7 Scope of the Study

The study focused on the effect of microfinance services on the performance of small holder rice farmer in Niger state. The study is limited to the three micro services (microcredit, micro saving and entrepreneurial skill training) provided by the MFIs to the rice farmer's co-operatives in the three local governments of Bida, Paiko, and Wushishi from three senatorial zones in Niger State. The study period is in 2017 farming season. Bida is representing Zone A, Paiko is representing Zone B and Wushishi is representing Zone C. The study made use of these three local government areas in the three senatorial districts in Niger State because of their large production of rice and concentration of rice farmers in the state (Niger state Ministry of Agriculture, 2012).

1.8 Limitations of the Study

The following are some limitations the study encountered;

Firstly, the study is limited to only rice farmers with cooperatives registered with the microfinance banks in rice producing areas in Niger state. There are other small holder rice farmers that are not patronizing the services of microfinance institutions. Data was only collected from beneficiaries of the services of these microfinance institutions.

Secondly, the cross sectional design adopted in the study suggest that the interpretation of the result is limited to a group examine at the point in time of the research. Hence, a longitudinal design for measuring dependent and independent variables at different times over an extended period of time would have been more revealing as it allows for the drawing of conclusions about the causality of the relationship which is difficult under a cross sectional study.

CHAPTER TWO

LITERATURE REVIEW AND THEORETICAL FRAMEWORK

2.1 Introduction

This chapter discusses the concept of microfinance, microcredit, micro saving, entrepreneurial skill training and performance. It also reviews empirical studies on microcredit and farmer's performance, micro savings and farmer's performance, entrepreneurial skill training and farmer's performance.

2.2 Concept of Microfinance

Over many decades, microfinance has emerged as an effective strategy for alleviating poverty and acknowledged as one of the prime strategies to achieve the Millennium Development Goals (MDGs) which is now Sustainable Development Goals (SDGs). Microfinance involves the supply of loans, savings, training and other basic financial services to the poor farm households. The small-holder farmers require diverse range of financial instruments to meet working capital requirement, build assets, stabilize consumption and shield themselves against risks (Iganiga, 2008). In practice, microfinance is much more than disbursement management and collection of small amount of loans.

Micro-financing is not a new concept in Nigeria as evidenced by such traditional and cultural economic activities as "ESUSU", Rotating Savings and Credit Associations (ROSCAs), Self-Help Groups (SHGs), which were practiced to provide funds for producers/farmers in most rural communities. It was on this note that Nigerian government modernized micro financing in rural and urban communities to improve the productive capacity of the poor farm households, enhance their economic standing which alleviates the level of the national economy through the certification of sound and regulated microfinance banks.

Petrick (2004) emphasized that microfinance refers to “flexible processes and structures by which financial services are delivered to owners of micro enterprises on a sustainable basis”. Adebayo, Sanni, & Baiyegunhi (2012) defined microfinance as the extension of small loans to micro entrepreneurs on low income and too poor to qualify for conventional bank loans, which is channeled towards income generating enterprises. Micro credit is a part of microfinance that is typically geared to lower inequality (Debalina and Koushik, 2010). In another contribution, Ojo, (2007) defined microfinance as smallholder financial services that are provided to rural/informal smallholder operators for farming, fishing, trading, and building of houses and to engage in any other productive and distributive activities.

Gert van Maanen (2004), describes microfinance as banking the unbankables, bringing credit, savings and other essential financial services within the reach of millions of people who are too poor to be served by regular banks, due to lack of sufficient collateral." Corroborating this position, Yunus (2003) opines that microfinance is based on the premise that the poor have skills which remain unutilized or underutilized and that it is not the lack of skills that makes poor people poor. Charity is not the answer to poverty. It only helps poverty to continue. It creates dependency and takes away the individual's initiative to break through the wall of poverty, therefore, the solution to poverty is to unleash financial energy and help individual develop their creative capacity.

Ehigiamusoe (2005) stated that microfinance is the provision of loans, savings opportunities, insurance, money transfers and other financial products targeted to the poor and low income households; while micro credit refers specifically to provision of small loans. Most terms and conditions for micro-loans and savings of the microfinance are flexible and easy to understand and suited to the local conditions of the community. From the aforementioned definition, three

features distinguished microfinance from other financial products which are; the loans advanced or savings collected are small, absence of asset based collateral and simplicity of operations in dealing with the rural farmers. According to Tchouassi (2011), microfinance refers to provision of financial services (including saving and credit) to the poor and vulnerable. Microfinance evolved as an economic development approach intended to benefit the low-income part of a given society, both men and women (Irobi, 2008).

Kimotha, (2005) defined microfinance simply as the provision of very small loans (micro – credit) to the poor, to help them engage in new productive business activities and/or to grow/ expand existing ones. However, overtime, microfinance has come to include a broader range of services. These include mainly credit, savings opportunities, insurance and money transfer, as practitioners came to realize that the poor, who lacked access to traditional formal financial institution, needed and required a variety of financial products to achieve meaningful improvement in their business activities. According to Okpara, (2009), Microfinance refers to the entire flexible structures and processes by which financial services are delivered to micro-entrepreneurs on a sustainable basis.

Christen, Lyman and Rosenberg (2003) perceive the concept of micro finance as the provision of financial and non-financial services by micro finance institutions (MFIs) to low income groups without tangible collateral but whose activities are linked to income generating ventures. These financial services include savings, credit, payment facilities, remittances and insurance. The non-financial services mainly entail training in micro enterprise investment and business skills. Roth, (1997) believes that micro finance encompasses microcredit, micro savings and micro insurance In this study, however, the terms 'Microfinance and Microcredit' will be used interchangeably to mean the provision of small loans, savings, non-financial services like training to poor and low-

income rural households especially farmers to be used for current production or consumption. This is due to the fact that microcredit is provided by traditional institutions (cooperative, groups, and community lenders) that work together for the mutual benefits of their members.

Microfinance has replaced community banks which provide savings and credit services to the rural dwellers. Also, CBN (2005) asserted that Microfinance provides financial services to the economically active poor and low income households. These services include credit, savings, micro-leasing, micro-insurance, and payment transfer to enable them to engage in income generating activities. The services of microfinance are micro in nature in this sense; this study would define microfinance as provision of financial and non-financial services of micro-credit and micro-savings and training to low income people.

2.3 Concept of Microcredit

Credit is one of the most significant bases of capital accumulation and may be viewed as a device for facilitating the temporary transfer of purchasing power from one individual or organization to another. Credit provides the basis for increased production efficiency through a specialization function (Kimemia, 2004). Access to credit is regarded as one of the key elements in raising agricultural productivity (DBSA, 2005). According to Ozowa (2007), microcredit to farmers encompasses all loans and advances granted to borrowers to finance and service production activities relating to agriculture, fisheries and forestry and also for processing, marketing, storage and distribution of products resulting from these activities.

Balasubramanian, Kumar, and Subramanian, (2012) defined micro-credit as the extension of small loans to low-income individuals who typically lack collateral, steady employment, and a verifiable credit history. Thus, microcredit enhances agricultural productivity and promotes

standard of living by breaking vicious cycle of poverty of smallholder farmers. Ogunofowora, Essang & Olayide (1972) reported that microcredit is not only needed for farming purposes but also for family and consumption expenses especially during the off season period. Microcredit is defined as the ability to obtain title to and receive goods for use in the present, although payment is differed to a further date (Miller, 1997). In the same vein, Adegeye & Dittoh (1985) described microcredit as a process of obtaining control over the use of money and services in the present in exchange for a promise to repay at a future date. Microcredit facilitates the acquisition and application of state of the art technology and enables such enterprise to be in the driving seat in technology application (World Bank, 2000). Micro credit is a part of microfinance that is typically geared to lower inequality (Debalina and Koushik, 2010).

Experiences around the world have shown that micro entrepreneurs do not need subsidies and that micro lenders cannot afford to subsidize the borrowers. Low income entrepreneurs want rapid and continued access to financial services, rather than subsidies (Seibel, 2007). Meanwhile, Mochona, (2006) explained that there are two kinds of credit that the MFIs gives which might be in form of group credit or individual credit. This study defines microcredit as repayable loan given to entrepreneurs, farmers, artisans etc. with or without interest rate to carry out activities.

2.4 Concept of Micro Savings

Savings is a common word used by individuals on daily basis. It simply means putting something aside for future use or what will be considered as deferred expenditure (Amu and Amu, 2012). Savings is the portion of income not spent on current expenditures. Saving is defined as that part of disposable income which is not spent on consumption (Bime and Mbanasor, 2011). According to Virani (2012) saving is sacrificing the current consumption in order to increase the living

standard and fulfilling the daily requirements in future. Saving is an amount of something such as time or money that you do not need to use or spend. It could be used for investment to earn interest (profit) or be used to purchase assets such as buildings. Saving is related to deferring consumption, which is done by the households (individuals), the firms and, the governments. When the interest rate is high, the household will save more money in the bank where entrepreneurs can borrow (Kanjanapon, 2004).

It is also observed at almost all the time that it is the household (individual) that saves most, but it is the entrepreneur that invests and the investment of the entrepreneur is got from the saving of the household (Balami, 2006). Since saving of the individual becomes the capital to be invested by the entrepreneurs, the saving and investment habit of individuals goes a long way in affecting their chances and the chances of other people to venture into entrepreneurship. Unfortunately, small farmers are challenged to meet their basic expenses and still have money available to save. Few institutionalized mechanisms support saving and asset accumulation for low-income individuals (Beverly & Sherraden, 1999; Sherraden, 1991). Development economics has long considered saving as central to long-term improvement in the well-being of the poor in non-industrialized countries (Besley, 1992; Deaton, 1991). Until recently the importance of saving and asset accumulation for the poor in industrialized countries was overlooked (Sherraden, 1991).

According to Vonderlack and Schriener (2001), savings was not generally encouraged by the poor; it was assumed that the poor and vulnerable have nothing to save. However, in the past decade the escalating contention has been that saving services and not just loans might better the well-being of the poor in general and of women in particular (Vonderlack & Schreiner, 2001).

This realization has led many MFIs to integrate savings services into their interventions. The most important economic obligation of members of the cooperative society is savings.

In the case of small farmers, group cooperatives save a specified amount of money daily, weekly, monthly or quarterly as it is convenient for the group and the individuals. Odoemenemet etal., (2013) were of the view that smallholder farmers invest their savings in two major areas. These are the agricultural and non-agricultural sectors. Investment in the agricultural sector or farm activity includes the purchase of fertilizer and chemicals, hired labour and buying more land for farming. Savings are very imperative for supporting and developing rural enterprises, improving well-being, insuring against times of shocks, and providing a buffer to help households cope in times of crisis (Zeller & Sharma, 2000).

Households' savings play an important role in the economic development of both developed and developing nations, due to its significant influence on the circular flow of income in the economy (Iyoha et al., 2003). Savings may be made in kind such as jewelry, land or livestock. It may be in the form of currency notes deposited in banks or more often hoarded. Savings provide several benefits for farm households. The sustenance of household savings increases the possibility of future investment both at the micro and macro- levels in the economy. Directly, savings could be used for investment. Indirectly, savings indicates repayment ability, also increase credit rating and as collateral in a credit market (Brata, 1999). Savings is both a risk management strategy and determinant of magnitude of investment. Investments are being made in agriculture to improve the quality of rural assets and enhance productivity. The ability, willingness and opportunity of households to save and invest over time can therefore significantly influence the rate and sustainability of capital accumulation and economic growth in developing countries (Oluwakemi, 2012).

Balasubramanian, Kumar, and Subramanian, (2012) defined micro-savings as product that consists of a small deposit account offered to low-income individuals as an incentive to store funds for future use. Often, minimum balance requirements are waived, or are very low, allowing users to save small amounts of money and not be charged for the service. Scott (2003) defines savings as income not spent or differed consumption. The savings mobilization has recently been recognized as a major force in microfinance.

In the past, micro finance focused almost exclusively on credit; savings were the "forgotten half" of financial intermediation (Vogel 1984). The importance of savings mobilization has been highlighted in several studies in the context of micro finance. Microenterprise programs can play a significant role to foster savings among the poor populations, with considerable benefits both for the savings and for the programs. Harper, (2003) says that domestic savings provide the assets for the economy's investment in future production. However, domestic savings in developing countries is usually low, people only save for certain motives.

According to Weath (2009) Economists identify two distinct motives for saving. The first is the precautionary motive; future income is uncertain and if people are risk averse it then makes sense to abstain from consuming income completely immediately so that a reserve is available to maintain consumption should income be lower than expected. The second motive is the life-cycle motive. People typically plan to retire; in order to finance their spending in retirement they need to save up out of their earnings while they work. Also, Bime and Mbanasor (2011) specified reasons why people do save money. The first reason was that people save in order to minimize their rate of spending, while the second reason was because of precautionary motives and the third reason was for security purposes and lastly because of high rate of interest involved in taking loan. This study adapts the definition of microsavings from the study of Babajide,

Taiwo and Isibor (2015) as is an aspect of microfinance consisting of a small deposit account offered to low-income families or individuals as an incentive to store funds for future use.

2.5 Concept of Entrepreneurial Skill Training

Entrepreneurial skill Training implies a service that accelerates the development of commercial and financial skills. It helps recipients successfully transition to higher-profit activities, generate new investment, expand markets, sales, and labor. They typically emphasize high-value crops, and crop and market diversification, while using market-driven approaches to enable farmers to implement technologies that increase yields, quality, and competitiveness (NORC, 2012).

Meanwhile, Agbarevo (2013) is of opinion that farmers have been blamed for poor adoption of the actual skill and knowledge of conservative gained from different training provided to them on different platform. The author goes further that there must be different means of evaluating extension programmes of the training through the learning situations provided, which is extension delivery mechanism or process as means of measuring extension of training effectiveness. Thus, the effectiveness of extension training can be used to assess success of extension programme. This is because if appropriate teaching/learning situation is provided, it follows that learning or relatively permanent and positive change in behavior of the farmer would take place (Misra, 1997). Meanwhile, extension effectiveness may be determined by the level of awareness of extension services/ training created among the farmers that meant to change their behavior toward the improvement in their farming activities.

Apart from these, Webster and Fidler (1996) advocate that in many cases, basic entrepreneurial skill training should accompany the provision of micro loans to improve the capacity of the poor to use funds. Micro enterprise investment training mainly addresses capital investment decisions,

general business management and risk management. Capital investment decisions include allocation of the micro enterprise limited capital funds most effectively in order to ensure the best return possible. Therefore, a wrong decision can have long lasting effect not only on the profits but on very survival of the enterprise. Meanwhile, Mochona (2006) opined that improving technical and business skills of clients through training will enhance their business skills to use credit and establish market channels for their products until they do that independently. This study however defines entrepreneurial skills as qualities that are required to recognize opportunities, take risks, organize and to put them into business practice. Skills are related to tasks and activities. For example, a farmer needs certain skills to be able to deal with customers/grow crops identify business opportunities in farming etc.

2.6 Concept of Performance

The concept of performance is a relative term and sometimes it is considered to be an overall efficiency and effectiveness of productive units or as a ratio of output to the corresponding inputs used. According to Mohammad, (1992) performance is someone's ability to produce more economically and efficiently. This term has also incorrectly and interchangeably been used with productivity. In reality, productivity refers to the volume of output, while performance signifies the output in relation to resources expanded (Dewet 1996).

Despite the great relevance of performance and the widespread use of job performance as an outcome measure in empirical research, relatively little effort has been spent on clarifying the performance concept. Authors agree that when conceptualizing performance one has to differentiate between an action (i.e., behavioral) aspect and an outcome aspect of performance (Campbell, 1990; Campbell, McCloy, Oppler, & Sager, 1993; Kanfer, 1990; Roe, 1999). The behavioral aspect refers to what an individual does in the work situation. It encompasses

behaviors such as assembling parts of a car engine, selling personal computers, teaching basic reading skills to elementary school children, or performing heart surgery. Not every behavior is subsumed under the performance concept, but only behavior which is relevant for the organizational goals: Performance is what the organization hires one to do, and do well (Campbell et al 1993.). Thus, performance is not defined by the action itself but by judgmental and evaluative processes (Ilgen & Schneider, 1991; Motowidlo, Borman, & Schmit, 1997).

Moreover, only actions which can be scaled, i.e., measured, are considered to constitute performance (Campbell et al., 1993). The outcome aspect refers to the consequence or result of the individual's behavior. The above described behaviors may result in outcomes such as numbers of engines assembled, pupils 'reading proficiency, sales figures, or number of successful heart operations. In many situations, the behavioral and outcome aspects are related empirically, but they do not overlap completely. Outcome aspects of performance depend also on factors other than the individual's behavior. A teacher who delivers a perfect reading lesson for instance (behavioral aspect of performance), but one or two of his pupils nevertheless do not improve their reading skills because of their intellectual deficit (outcome aspect of performance). Or a sales employee in the telecommunication business who shows only mediocre performance in the direct interaction with potential clients (behavioral aspect of performance), but nevertheless achieves high sales figure for mobile phones (outcome aspect of performance) because of a general high demand for mobile phone equipment.

In practice, it might be difficult to describe the action aspect of performance without any reference to the outcome aspect. Individual performance changes as a result of learning. Studies showed that performance initially increases with increasing time spent in a specific job and later reaches a plateau (Schmidt, & Hunter, 1988; Avolio, Waldman, & McDaniel, 1990; Quinones,

Ford, & Teachout, 1995). Moreover, the processes underlying performance change over time. During early phases of skill acquisition, performance relies largely on controlled processing, the availability of declarative knowledge and the optimal allocation of limited attention resources, whereas later in the skill acquisition process, performance largely relies on automatic processing, procedural knowledge, and psychomotor abilities (Ackerman, 1988; Kanfer & Ackerman, 1989).

Performance can be defined as a measure of efficiency in an agricultural production system which employs land, labour, capital and other related resources. In this study therefore, performance is defined as ratio of output to inputs in relation to financial facilities of credit, savings, training, which encompasses; fertilizers, improved seeds, labour and technology.

Gibson and Cassar (2005) suggested both financial (sales and income measures) and non financial (number of employees) indicators concentrated economic success to measure performance. Because of the difficulty in obtaining reliable information and the inherent difficulty of small holder farmers to document financial information, this study used both financial and non-financial measures such as sales, profits, number of laborers employed, market share and reinvestment in the farm to measure the farm performance of small holder rice farmers.

2.7 Relationship between Microfinance and Performance

World over, provision of micro finance to the vulnerable has been considered an innovative and sustainable approach where the poor can engage in micro enterprise activities to generate income so as to improve their livelihoods and contribute to economic growth. Microfinance refers mainly to small loans; savings mobilization and training in micro enterprise investment services extended to poor people to enable them undertake self employment projects that generate

income. Rural-based micro finance programs for farmers in particular have the potential to help farmers perform farming activities.

The relationship between microfinance and performance has been analyzed at the individual, household and enterprise levels. Hulme and Mosley (1996), conducted various studies on different microfinance programmes in numerous countries and found strong evidence of the positive relationship between access to a credit and the borrower‘s level of income. The authors indicated that the middle and upper poor received more benefits from income-generating credit initiatives and performed better than the poorest

Sichanth (2004) also points to a positive relationship between microfinance and performance on the income level of individual borrowers. This was seen from the higher monthly income earned after the member accessed credit. Shaw (2000) studied two microfinance institutions (MFIs) in Southeastern Sri Lanka and showed that the less poor clients ‘micro-business owner that accessed loans from microfinance programmes could earn more income and perform better than those of the poor could. Mosley (2001) evaluated the impact of loans provided by two urban and two rural MFIs on performance in Bolivia. He found that the net impact of microfinance from all institutions, at the average level, was positive in relation to borrowers ‘income, even though the net impact for poorer borrowers might be less than the net impact on richer borrowers. Copestake (2002) conducted a case study of the Zambian, applying the village bank model to investigate the effect on income distribution at the household and enterprise levels. The study showed that the impact on income distribution depends on who obtains the loan, who moves on to larger loans and who exits the programme: group dynamics was also an important factor. He notes, some initial levelling up of business incomes was found, but the more marked overall effect among borrowers was of income polarization (Copestake, 2002).

In summary, there is an indication that there is a clear relationship between microfinance and performance. This means that there is a relationship between the services of MFIs (microcredit, microsavings and entrepreneurial skills) and performance of their beneficiaries.

2.8 Review of Related Empirical Studies

The review of empirical studies relating to the study undertaken is given as follows. The empirical review of each independent variable with the dependent variable is taken into consideration. The first is microcredit and performance, microsavings and performance, and entrepreneurial skills training and performance.

a. Microcredit and Performance

Udoka, Mbat and Duke (2016) examined the effect of commercial banks' credit on agricultural output in Nigeria. The ex-post facto research design was adopted for the study. Data for the study were collected from published articles and the Central Bank of Nigeria Statistical bulletin, ordinary least squares regression technique was employed the results showed that there was a positive and significant relationship between agricultural credit guarantee scheme fund and agricultural production in Nigeria. Consequently, the study used extractions from secondary data, hence had no view from the farmers.

Ayegba and Ikani (2013) appraised the impact assessment of agricultural credit on rural farmers in Nigeria. Data were collected from the primary sources and a total of 500 questionnaires. The results indicated that unregulated private money lenders (53.33%) constitute the major source of credit which is not healthy for an economy that is ready to grow. It was equally clear that the much needed banks in the rural areas are mainly found in the urban areas leaving the rural farmers without formal sources of credit hence hindering their performance. It was however

recommended that the federal Government in collaboration with banks should create credit instruments and services that are tailored to the risk and cash flow patterns in the agricultural sector. Consequently, the study looked at how farmers assessed credit.

Poliquit (2006) examined the accessibility of rural credit among small farmers in Philippines. Two types of respondents were interviewed 45 farmers, and 4 informants in the area. Focus was on how the rural farmers perceived the rural credit, their preferences, their reason for borrowing and their problems in accessing rural credit. Qualitative analysis was done for the data gathered. The result showed that access to credit was limited, thus farmer's preferences were not served. It was recommended that accessibility to rural credit should be improved, by introducing innovative financing schemes.

Nosiru (2010) examined Microcredit's and Agricultural Productivity in Ogun State, Nigeria. A population of 91 farmers was taken from two groups of 31 beneficiaries and 59 non beneficiaries of microcredit. The data was collected during the 2008/2009 farming year. Structured questionnaire was administered and interview conducted for the selected farmers in order to collect relevant data. Descriptive statistics, multiple regression analysis, chow test and the test of difference between means of factors were used in meeting the objectives of the study. The findings revealed that the beneficiaries of microcredits in the study area were more productive than the non-beneficiaries. The study however focused on comparism between beneficiaries and non-beneficiaries of microcredit. Performance was also measured in terms of output.

Tanko, Ajani and Adeniji (2012) evaluated the Relative Technical Efficiency of Credit and Non-Credit Users in Rice-Based Enterprises in Lavun Local Government Area, Niger State, Nigeria. The sample size comprised of 60 rice-based farmers that utilized credit and 60 rice-based that did

not have access to credit giving a total of 120 respondents. The additive multiplicative dummy variable approach was used to compare the technical efficiencies of the farmer groups. Results indicated that farmers with access to credit were more technically efficient in rice production as compared with farmers without access to credit. The study focused on efficiency in productivity between beneficiaries of credit and non-beneficiaries.

Nzomo and Muturi (2014) examined the Effect of Types of Agricultural Credit Programmes on Productivity of Smallholder Farming Businesses in Kenya: A Survey of Kimilili Bungoma Sub County. The study adopted a cross sectional survey design, the population comprised of 123 randomly selected small-scale rural farmers, who are users of micro-credit. The data was processed and analyzed using the Statistical Package for Social Sciences (SPSS). Descriptive statistics was used to analyse the qualitative data while cross-tabulations were done to examine the relationship between variables. Farmers' perceptions about the effect of credit were measured on a likert scale. The findings of this study showed that, Agricultural credit has the capacity to enhance the income of farmers who utilize it by more than 100% and this clearly defines the role of credit in the farming sector.

Eularie and Vishwanatha(2016) looked at the impact of microfinance services on smallholder farmers' welfare in Rwanda**.** Data were collected using structured questionnaires that were administered to the sample of households' heads via person-interviews. Both groups shared the same socio-economic and physiographic environment and hence assumed to have similar economic status before participating in microfinance services. Analysis of data was carried out using descriptive statistics and Probit Model. The results from descriptive statistics showed that 48 percent of the household heads had participated in microfinance services while 52 percent of the household heads had not participated in microfinance institutions.

Hassan, Billah, Hossen and Mamum (2013) examined the effect of microcredit on agricultural output produced by small farmers of Khulna district in Bangladesh. The sample size was restricted to a total of 80 farmers out of which 40 farmers were selected from each of the microcredit receiving and non-receiving groups. Multiple regression model was also used and the study found that production function shows that marginal effect of capital and labor are positive and statistically significant and that socio-economic determinants of experience and fulltime farming affect farm output positively.

Akwaa-Sekyi (2013), investigate the impact of micro credit on farming activities within Sunyani area in Ghana. Sample of 103 farmers were selected from farmer clients of a rural bank and Paired samples t-test was adopted as tools of analysis. The result found significantly large effect of the micro-credit intervention on the labour employed, working capital, output and income of farmers.

Okon, Etim and Offiong (2012), focused on impact of microcredit scheme on rural farmers in Akwa Ibom State. Data were derived from 300 farmers randomly selected from Okobo, Itu and Ikot Abasi agricultural zone in Akwa Ibom State. T-test and Pearson Product Correlation coefficient were used as tool of analysis. The study found that microcredit from microfinance banks had caused a change in household income, increase in household consumption, enabled rural farmers provide better health care and nutrition to their children; provide increased female empowerment and enable rural farmers to increase their bank savings.

Menon, Noonari, Sharh, Peerzado, Panhwar, Sethar, Kalwar, BhattiandJamro (2015) examined the impact of micro-credit on agricultural development in district Mastung Balochistan. The study made use of 40 respondents as sample and Chi-square test was applied as tool of analysis.

From the study it was concluded that microcredit have positive impact in the agriculture field, economic status, household living standards of the farmers. But the study made use of socio-economic components of the farmers as determinants of access to micro-credit.

Ambali (2013) examined the effect of microcredit on technical efficiency of rural farm households in Egba division of Ogun State. The study made used of 160 rural farmers as the sample and data was analyzed using descriptive statistics, probit regression model and stochastic frontier production analysis. The study revealed that the significant factors that determine access to credit among rural farm households include age, farm size, household size, farming experience and education. The study was on socio-economic determinants of assessing microcredit.

Kuye (2016) analysed the effect of micro-credit on livestock production among smallholder livestock farmers in Yakurr Local Government Area of Cross River State. The sample comprises of 150 smallholder livestock farmers in the study area while multiple regression was used as tools of analysis. The study found that microcredit had significant effect on livestock production in the study area and affected the quantity of feed, quantity of fresh clean water, medication and vaccination as well as labour used by livestock farmers.

Ali (2014) examined access to agro-credit by farmers in Kaduna state, Nigeria. The study employed survey research methodology which covered the three agricultural zones in the study area. To achieve the objective of the study, five research questions guided the study and one hypothesis was formulated. Hypothesis was tested using Chow test model. The data generated were analyzed using multiple regression and 4-point likert scale rating. The study found that credit level, age, education, experience serve as the determinants of farmers productivity.

Based on the previous reviews on microcredit and small farmer's performance, it can be deduced that most of the studies looked at the beneficiaries and non beneficiaries of microcredit, socioeconomic determinants of accessing microcredit and also, the studies looked at performance in terms of agricultural output alone. This study will distinguish itself from these studies in the sense that it will look at microcredit not only in terms of farm output but also how it impact on farmers performance in terms of their profit, income, revenue, sales from the farm.

b. Micro savings and Performance

Ikechuckwu (2006) investigated savings and investment behavior of farmers in Giwa and Sabon Gari local Government Zaria. The population comprised a total of 160 farmers that were randomly selected, with 80 farmers each from the two local government areas. The analytical tools employed were descriptive statistics, multiple regression and correlation analysis. The study showed that the mean income, savings and investment per farmer were N204, 118, N47, 351 and N65, 457 respectively. The regression coefficients showed that farm income, off-farm income, and family size were responsible for about 61 percent variations observed in the level of savings. Also, farm income, off-farm income and loan obtained were responsible for about 71 percent variations in the level of investment of the farmers. The correlation analysis revealed that farm income, off-farm income, age, education, household size, farm size and farming experience were statistically significant at 1% level of probability in their relationship with factors that exert significant positive influence on the level of savings and total investment include income, family size, loan and farm size, significant at 1% and5% level of probability. Farm investments made were mostly recurrent investment; these include purchase of fertilizer, seeds, chemicals, hoes, cutlasses and hired labour with very little capital investment which improves farm productivity.

Babajide, Taiwo, and Isibor (2015) evaluated Micro Savings Mobilization Innovations and Poverty Alleviation in Nigeria. The study was carried out in Lagos and Ogun states, southwest Nigeria, covering both urban and rural areas of the two states. The study employed primary data from a structured questionnaire and used ordinary least squares to test study hypotheses. A total of 300 copies of the questionnaire were distributed, 267 copies of questionnaire were returned and used for analysis. The results obtained showed that the savings rate increased by 160% since the introduction of the innovative savings account. The study recommended more awareness programs on innovative savings products. The study however focused on how to encourage savings through new innovative measures. Also, the population of 300 representing two states is little.

Minimbo, (2013) in her dissertation examined Microcredit and Maize Productivity: The Case of Village Saving Loans (VSL) in the Southern Uluguru Mountains, Tanzania.A cross sectional design was adopted. A representative sample of 120 respondents was randomly drawn comprising members and non members of VSL. Both qualitative and quantitative methodologies were used. The methods used under qualitative methodology were Focus Group Discussion and observation under quantitative methodology, a questionnaire with closed and open ended questions was used to collect data. The Statistical Package for Social Science (SPSS) was used for data analysis. The results showed that VSL has not been successful in increasing agricultural performance of its members. The study showed a negative relationship among the variables in study, this calls for conducting other studies to test if there is a positive significant relationship.

Asamoah and Amoah (2014) examined Microcredit Schemes: A Tool for Promoting Rural Savings Capacity among Poor Farm Families: A Case Study in the Eastern Region of Ghana. A total of 212 respondents in organised cocoa farmer Associations since 2010 were interviewed

using formal questionnaires. The results indicated that the microfinance model had helped the respondents, mainly smallholder cocoa farmers, to mobilize substantial savings in a convenient and tailor made way. Also, the schemes allayed the fear of the participants to take credit from financial institutions with high (over 95%) repayment culture using peer support, group guarantee and social capital generated through the formation of associations. They also had easy access to farm inputs such as fertilizer to maintain their cocoa farms because of their savings mobilization. It is concluded that microfinance model is a potential tool that promotes savings culture which gives access to credit for smallholder cocoa farmers to purchase farm inputs to increase productivity and enhance their livelihood.

Brannen (2010) examined An Impact Study of the Village Savings and Loan Association (VSLA) Program in Zanzibar, Tanzania using both quantitative data from individual surveys, and qualitative data from focus group discussions and key interviews were used. In order to control for selection bias, the study utilized a control group of new VSLA members who were still in the initial training, and also statistically controls for differences in demographic characteristics including age, gender, religion, marital status and education, which may affect program impact. The results suggested that participation in the program had an overall positive impact on various indicators of household and individual welfare, including asset expenditure levels, the development of income-generating activities (IGAs), education expenses, and access to health services, nutritional levels and quality of housing.

From the above reviews, it is worth deducing that there is a paucity of research on the variable. It can also be concluded that the studies looked at how savings influence investment, how MFIs helps in mobilizing savings and demographic determinants of assessing micro savings. Some studies also assumed a negative relationship. It is thus imperative to test the relationship between

microsavings and small farmer's performance. This study will differ in that it will examine the savings behavior and attitude of smallholder farmers.

c. Entrepreneurial Skills training and Performance

Noor and Dola (2011) investigated training impact on farmer's perception and performance. A total of 323 farmers and training personnel participated in the study as respondents. A multi-stage approach was used where data were primarily collected using mail survey followed by telephone survey and personal face-to-face feedback. This was then supported by semi-structured interviews with selected identified individuals on the basis of purposive sampling. Findings suggested that on a general account a positive trend emerged from the study indicating the effectiveness of the training programs although with range of variations of benefits gained by the farmers. A majority of the respondents agreed that the program have been useful and had made them become better farmers.

Wordofa and Sassi (2014) looked at Improving Small holder Farmers' Income through Farmer Training Centers (FTC): an Impact Evaluation in Haramaya District, Ethiopia. Household survey was conducted on a sample of 250 household; using the same data collection instrument in treatment and comparison areas, data was generated specifically for the purposes of impact evaluation. Due to the non-random allocation of FTCs and self-selection issues as well as the cross-sectional nature of data collected, the propensity score matching procedure was employ to estimate the causal effect of an FTC-based training on farm productivity and income. The results of the investigation indicated a positive and statistically highly significant gain of farm income by the participants of the modular training. From the results, some recommendations on improving the performance of FTCs in impacting rural livelihoods were drawn.

Rajesh Kumar, Baskaran, Saraswathi, Theophilus and Anand Kumar (2013) evaluated Impact of Training Program in Adoption of Cattle Feed Computation by Farmer Interest Groups (FIGs) of Tamil Nadu. A total of twelve villages from twelve community development blocks were selected. Data were collected on pretested interview schedule. Training program was offered to 269 different village respondents on cattle feed computation and level of technology adoption was carried out to assess the effectiveness of the program through pre and post evaluation of respondents. Garrets Ranking Technique was performed in prioritizing the opinion of farmers on the new feeding technology pattern adopted by Farmer Interest Groups. The overall adoption percentage by the group was 56.81%. Also the results clearly indicated that there was highly significant difference ($P<0.01$) in the knowledge level of the respondents before and after training. The Garrets Ranking technique revealed that the top score of 73.11had been given to the cross bred animal which showed a marked increase in milk yield during the experimentation period of 15days as adoption of new feeding technology and ranked the first position.

Santoyorio (2013) examined Training Needs Assessment for the Project for Agricultural Development and Economic Empowerment (PADEE) in Takeo, Kandal, Prey Veng, Svay Rieng and Kampot provinces Cambodia. The study explored farmers' training needs in land and non-land based income generating activities and reviews the members' preferred training methods and timings, the study used a mix of internationally recognised qualitative and quantitative research methods to capture farmer's knowledge (based on a self-assessment) and the importance they place on different agricultural practices, and to understand what the best and most efficient tools are for transmitting agricultural knowledge. A total of 52 IGRFs were randomly selected from the 748 IGRFs operational in 26 districts in the five provinces, reflecting the geographical distribution of the groups across the five provinces. A total of 520 farmers were interviewed

(approximately 10 per group) and five focus group discussions were conducted. The findings revealed that the highest ranking training needs are in livestock and crop production, followed to a lesser extent by vegetable production. Fisheries and fruit growing were the lowest ranked training needs as perceived by respondents. More specifically, training on controlling pests and diseases was the most sought after by respondents in all five provinces, followed by training in selecting and buying inputs and fertilizer use. Crop diversification, water management and post-harvesting activities (key activities to increase income) ranked low.

Nieuwoudt, (2016) evaluated Entrepreneurial Characteristics and Financial Performance. The study was conducted in South Africa, and the data used within the study was gathered through a formal agreement with a commercial financial organisation. The financial performance of the farmers was calculated by means of farm financial ratios and then used to determine a single measurement namely the operating efficiency. The operating efficiency was calculated using a mathematical linear programming technique; this technique was a financial based Data Envelopment Analysis (DEA). It was hypothesised that entrepreneurial competencies of farmers will have an effect on the financial performance of the farm. Entrepreneurial competencies were identified in terms of the statements that displayed high-factor loadings for each of the competencies. Farmers displayed an average of 70% or above for all the individual entrepreneurial competencies, indicating entrepreneurial behaviour among the farmers. To determine the relationship between entrepreneurial competencies and financial performance the operating efficiency scores were regressed against the competencies scores. An Ordinary Least Squares (OLS) model was used within the Principal Component Regression (PCR) to regress the dependent and independent variables due to the nature of the dependent variables. The results from the financial based DEA showed that there were inefficient farms within the sample,

however more than half of the farms had an efficiency score above 0.855, indicating high levels of operating efficiency.

Al-Sharafat (2017) examined The Impact of Human Capital Development on the Financial Performance of Agricultural Enterprises: Application on Broiler Industry. Intentional sample of 119 broiler farms with almost equal capacity (20,000 birds for each) were selected to resemble the investigated broiler farms. A cross sectional survey using a 5-point Liker tscale questionnaire was conducted on broiler farms included in the sample. The data covered human capital development related characteristics of farms operators (e.g. Level of training, education, level of exposure to agricultural extension activities, experience, education area and level of entrepreneurial skills). The financial performance indicators of the investigated broiler farms (e.g. return on assets, current ratio, debt to asset ratio and profit margin) were also covered. Multiple Regression (MR) and Pearson Product Moment Coefficient Analysis were conducted in the study to analyze the data. The results of the study revealed that among many human capital components, training, education, exposure to agricultural extension activities, experience, education area and entrepreneurial skills of farm operators have significant positive impact on the financial performance of the investigated broiler farms. The study however was focused on just financial performance of the farm.

Mujuru (2014) evaluated the Impact of Strategic Entrepreneurship Skills Training Workshops on Small-Holder Farmers' Entrepreneurial Competence and Capabilities in Zimbabwe. Both quantitative and qualitative approaches were used to increase validity, credibility and reliability of the research. A representative sample of 67 at irrigation Scheme was selected and 169 were selected for the open ended questionnaires. Data from 224 respondents were presented since 3 questionnaires were spoiled. Simple random sampling was used in selecting the respondents in

both provinces. Content analysis was used to analyse qualitative data and Statistical Packaging for Social Sciences (SPSS) to analyse quantitative data. Bar graphs and pie charts were also used to present the findings of the study. The hypothesis of the study was that strategic entrepreneurship workshops would improve the entrepreneurial capability and competence of the rural farmers. The study found that strategic entrepreneurship workshops enabled the majority of the rural farmers to satisfy their customers, train their children in the farming business adapt to the environmental changes and to be able to successfully market their produce. The population of the study was too small to represent the entirety of the country.

The major limitations of the above studies reviewed attempting to find the relationship between of entrepreneurial skills training and small farmers performance is that most of them focused on technical training for farmers and not entrepreneurial skill training, also, some studies focused on financial performance of the farm, this study will differ as it will encapsulate financial and non-financial indicators of performance, and also examine how training in terms of entrepreneurship will impact on smallholder farmers performance.

2.9 Theoretical Framework

This study was underpinned by two different theories which are: Classic microfinance theory by Srikant, Marc and Kristi (2008) and, Human Capital Theory by Becker (1975)

a. The classic microfinance theory of change was advocated by Srikant, Marc and Kristi (2008) and cited by Dunford (2012). According to the authors, a poor person goes to microfinance provider, and takes a loan (or saves the same amount) to start or expand a micro-enterprise which yields enough net revenue to repay the loans with major interest and still have sufficient profit to increase personal or household income enough to raise the persons standard of living. The

assumptions behind this theory are; first, clients take loans from (or save with) microfinance institutions secondly, they invest the money in a viable business. And thirdly, they manage the business to yield major return on the investment. This invariably increases the performance of their enterprises. This theory is of the notion that microfinance institutions are the world most powerful solution to lack of financial services especially in rural areas. The supporters contend that small loans and savings fuel economic self sufficiency which increases the performance of the beneficiary.

The implication of this theory to this study is that clients (small holder farmers) patronize the services of microfinance institutions (microcredit and microsavings) which help increase their performance. Therefore, microfinance classic theory of change stands as the most significant theory to underlie this study. This is because the theory is on the notion that low income earner (small holder farmers) will take microcredit and microsavings from microfinance institutions and invest on their farms and manage the farm to yield major return on the investment. Therefore this results in improvement in their farm performance.

The theory believes that the activities of the microfinance banks serve as a useful tool for increasing the productive capacity of the users. The importance of microfinance banks in improving the end users performance has been widely discussed in literature. In addition, Bencivenga and Smith (1991) explained that development of microfinance banks and efficient financial intermediation contributes to economic growth of rural area by channeling savings to high productive activities and reduction of risks that may endangered their productive capacity.

The importance of microfinance bank in generating growth within the rural area has been widely discussed in the literature. Also, early economists such as Schumpeter (1934) identified banks'

role in facilitating technological innovation through their intermediary role such as supply of credit to the productive sector. He believed that efficient allocation of savings through identification and funding of entrepreneurs with the best chances of successfully implementing innovative products and production processes are tools to achieve this objective.

In addition, Bencivenga and Smith (1991) explained that development of microfinance banks through efficient financial intermediation contributes to economic performance of rural area by channeling savings to high productive activities and reduction of risks that may endangered their productive capacity. In the same vein, several scholars such as: Mckinnon (1973); King and Levine (1993) have supported the above postulation about the importance of microfinance banks in providing not only micro-credit and microsavings in enhancing the performance of rural areas.

b. Human Capital Theory; this theory was postulated by Becker (1975) the theory derives its premise on two factors, which are knowledge and experience. The theory postulates that knowledge acquired from education and experience is considered a resource that is diversely dispensed across individuals which informs the basis for understanding the disparities in recognition and identification and exploitation of opportunities (Chandler and Hanks 2000) thus, the human capital theory of entrepreneurship creates foundation for the place of education regarding entrepreneurial development and increase in entrepreneurial activities. The implication of this to the study is that as farmers gain entrepreneurial skills in form of education and experience from microfinance banks, the knowledge expands their entrepreneurial activities which improve their performance.

According to Skuras, Meccheri, Moreira, Rosell, & Stathopoulou, (2005), entrepreneurial human capital comprises skills and knowledge learned/developed by the entrepreneur. Human capital

regulates the capability of the owner of a business to identify an opportunity and to use that opportunity to their advantage. Human capital; Skills; and Knowledge include the number of years' experience; education; training experience; managerial experience; family influences and age (Skuras *et al*. , 2005; Lans, Hulsink, & Mulder, 2006).

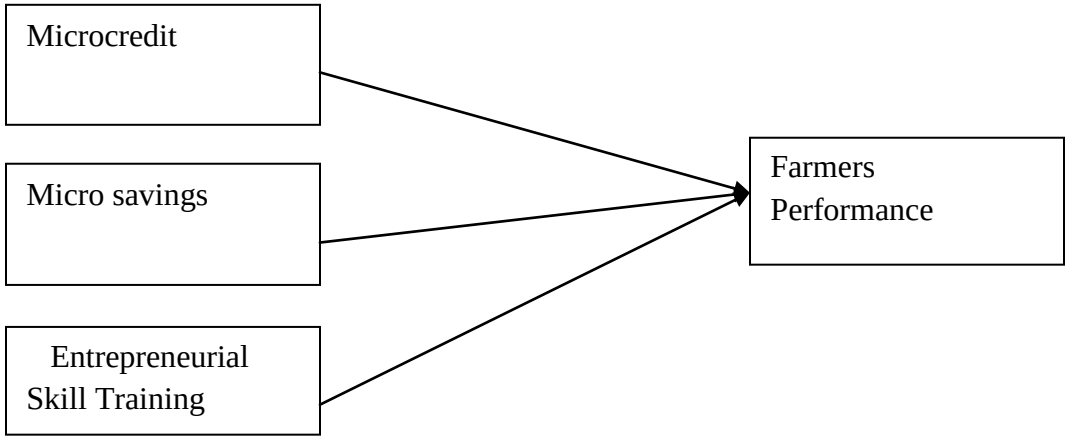
According to Becker (1975), studies which have traditionally focused on the relationship between human resources and financial success which stems from the human capital theory. If a profitable opportunity exists, people who tend to have higher levels human capital will identify this opportunity easier (Davidson & Honig, 2003). These human capital factors contribute to giving entrepreneurs an advantage.

According to Skuras *et al.* (2005), human capital comprises the processes that contribute to advanced stages of knowledge which give an entrepreneur a competitive advantage in beginning a thriving and successful venture. A large part of the human capital theory is thus the formal process of gaining a competitive advantage through education and training. Skuras *et al.* (2005) describe this process as a cognitive process, whereby human capital is increased by gaining knowledge through work experience.

There are formal and informal processes for increasing one's human capital, these processes will help the entrepreneur to attain higher standards of abilities in a wide range of entrepreneurial areas, for example "*finance, management and marketing*" (Skuras *et al.*, 2005). It is therefore important to remember that these are not the only significant factors that need to be taken into consideration. According to Davidson and Honig (2003), human capital is not only gained by formal education, but it also derives from experience and real-world learning that is gained

through different experiences, as well as informal education (training courses that are not part of formal education).

Figure 1 Proposed Research Framework



Source: Author 2018

The above framework shows a visual presentation of the variables and how they interrelate with one another before empirical investigation is done to prove the relationship. The independent variables (microcredit, microsavings, and entrepreneurial skill training) are expected to influence the performance of small holder farmers which is the dependent variable. This study differs from the above reviewed studies, in that they only considered some aspects of two of its variables (microcredit and microsavings) and none of them looked at entrepreneurial skills training as it influence small farmers performance. Therefore, this study will fill this literature gap.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter is primarily meant to give detail explanation on the approaches or procedures used by the researcher in executing the study. This particularly involves issues like the research design, study population, sample size, method and instruments of data collection, as well as method(s) of data analysis.

3.2 Research Design

The study adopts a survey research design which is cross-sectional in nature. Primary data was used to collect data from the population of the study using survey questionnaire. This type of research design is adopted because the information about the independent variables and dependent variable represents what is going on at only one point in time. The questionnaire was divided into four sections and all the questions were in close ended form. Section A asked questions on microcredit; section B on microsavings; section C was a set of questions on entrepreneurial skills training and section D on farmers performance.

3.3 Population of the Study

The population of this study comprised 210 individual rice farmers. These farmers are registered with self established cooperatives. MFI in Zone A had 9 registered rice farmer's cooperatives each cooperative had a membership of 10 people, making the population of Zone A to be 90. MFI in Zone B had 7 cooperatives, with a total population of 70 and MFI in Zone C had 5 cooperatives with a total population of 50 members. Although there are a total of 25 local government areas in Niger State, the choice of these three local governments is because they are

the largest rice producing communities in Niger state (Niger State Ministry of Agriculture, 2012). The choice for these MFIs is sequel to a reconnaissance study carried out by the researcher in which he established that they are the only ones offering microfinance services of microcredit, micro saving and entrepreneurial skill training for smallholder farmers in the study area. The breakdown of the population is presented in table 3.1

Table 3.1

Population of the Cooperatives

Local Governments in Niger State.	**Number of small holder rice farmer in each cooperative from MFIs in Niger state.**	**Population**
Bida Zone A	9 cooperatives of 10 individual members.	90
Paiko Zone B	7 cooperatives of 10 individual members.	70
Wushishi Zone C	5 cooperatives of 10 individual members.	50
TOTAL		210

Source: Researchers Computation

3.4 Sample Size and Sampling Technique

Table 3.1 shows the total population of registered rice farmers from various cooperatives in each of the three local governments in Niger State which is 210 individual rice farmers.

The sample size was arrived at using Yamane formula. Thus the sample size of the study was determined as follows:

$$n = \frac{N}{1+N(es)^2}$$

Where: n= sample size, N= the population, e = level of significance

Thus, N = 210, e = 0.05 and n =?

$$n = \frac{210}{1+210(0.05)^2}$$

$$n = \frac{210}{1+ 0.525}$$

$$n = \frac{210}{1.525}$$

$$n = \frac{138}{}$$

However, in order to take care of non-responses and incorrect filling or failure of some respondents to fill or return the questionnaire, 30% of the minimum sample provided in the formula was added as suggested by Israel (2013). Thus, 41 respondents were added to the computed sample size of 137.7 which gives the total of 179.

Stratified and simple random sampling technique was adopted to select rice farmers benefiting from the services of microfinance institutions from the 3 rice producing local governments from the 3 senatorial zones in Niger States namely; Bida local government in Zone A, Paiko local government in Zone B and Wushishi local government in Zone C. The questionnaire was distributed based on proportionate sampling procedure to arrive at a sample size for each senatorial zone.

Table 3.2

Distribution of Questionnaires according to Senatorial Zones

SENATORIAL ZONES	NUMBER OF REGISTERED SMALLHOLDER RICE FARMERS WITH MFIs	APPORTIONED QUESTIONNAIRES
Zone A Bida LGA	9 cooperatives of 10 equals 90 rice farmers	77
Zone B Paikoro LGA	7 cooperatives of 10 equals 70 rice farmers	60
Zone C Wushishi LGA	5 cooperatives of 10 equals 50 rice farmers	42
TOTAL	210	179

Source: Researchers Computation

Table 3.2 shows how the questionnaires were proportionately distributed to the 3 rice producing local government areas in each of the three Senatorial Zones Niger state. This was obtained by taking the numbers of registered cooperatives in each zone multiply by the sample size of the study and divided by the total registered cooperatives in each zone of Niger State.

3.5 Sources and Method of Data Collection

Primary data was used for the study in order to guide the researcher in making meaningful findings and conclusions. The study obtained the data through administering of questionnaire to registered individual rice farmers organized in cooperatives and operating with MFIs in the three geopolitical zones in Niger state. The questionnaires were distributed to the respondents based on

proportionate sampling technique where Niger state was stratified into three rice producing Zones. The higher the number of cooperatives in each zone, the higher the number of questionnaires allocated to it.

3.6 Variable Measurement

Microcredit was measured with a questionnaire from the study of Reda (2016). Responses were adapted on five point likert scale ranging from strongly agree (5), agree (4), undecided (3), disagree (2) and strongly disagree (1). Five items were adapted among which includes; interest rate charged on microcredit is fair and affordable, microcredit repayment is convenient. The multidimensional measure of microcredit was adapted because it is believed that the microcredit will enable the smallholder farmers improve their farm performance more effectively.

Microsavings measures were adapted from the study of Tuvesson and Isaksson (2011). Eight items were adapted from the study. The respondents were asked to rate on the statements that describe their attitudes towards saving. A higher scale demonstrated the respondents practice effective saving attitude and vice versa. Responses ranged from strongly agree (5), agree (4), undecided (3), disagree (2) and strongly disagree (1). Some of the questions include; I can't afford to save, I don't need to save, among others.

Entrepreneurial skills training measures was adopted from the study of Linan (2008). Six items was adapted among which include; creativity, recognition of opportunity, problem solving skills, development of new products etc. Responses ranged from strongly agree (5), agree (4), undecided (3), disagree (2) and strongly disagree (1).

The dependent variable for this study was farmer's performance. Subjective performance measures were employed in this study based on a modified version of Kotey and Meredith (1997) and Gadenne (1998). Items from the studies conducted by Pushpakumari and Watanabe (2008) were adapted; items included in the questionnaire are sales revenue; profits; enterprise stability; labor employed. The respondents were asked to rate the farm performance indicators using a five point scale, ranging from strongly agree (5), agree (4), undecided (3), disagree (2) and strongly disagree (1).

3.7 Technique of Data Analysis

The data for this study was analysed first by using descriptive statistics in order to determine the level of microcredit, microsavings entrepreneurial skills training and level of farmer's performance in Niger state. Then, multiple regression analysis was used to test the hypotheses about the impact of microfinance services and smallholder farmer's performance in Niger state using Statistical Package for Social Science (SPSS) version 20.3

The decision to use regression analysis (parametric tool) was informed by the fact that the researcher's objective was to establish the relationship between the variables and to see which variable predicts the dependent variable as well as its influence on the prediction.

Again, Regression is aimed at investigating which independent variable predicts the dependent variable and their influence on the prediction. Multiple Regression was adopted because the researcher's objective was to determine the impact of microfinance services on performance of smallholder rice farmers in Niger state. Multiple regression was therefore adopted to test the multiple effects of the independent variables (microcredit, microsavings and entrepreneurship skill training) on the dependent variable (performance of smallholder rice farmer).

3.8 Validity and Reliability

A pilot study was conducted in order to test for the validity and reliability of the instrument. The validity of the instrument was obtained by a panel of two experts. Each scale item was rated in terms of the relevance of its constructs. The items were rated on 5-point ordinal scale: strongly agreed, agreed, undecided, disagreed and strongly disagreed as suggested by Lynn,Waltz and Bausell (1981) cited in Polit and Beck (2006)

The questionnaire was further subjected to a reliability test using data collected from 39 samples of the respondents. The reliability of the questionnaire adapted from Reda (2016) for measuring microcredit, Tuvensson and Isaksson (2011) for measuring ,microsavings Linan (2008) for measuring entrepreneurial skills training, and Pushpakumari and Wantanbe (2008) for measuring smallholder farmers performance were tested using the reliability scale of chronbach alpha. The reliability result is shown in table 3.2

Table 3.3

Reliability Result

Variable	**Number of Items**	**Cronbach Alpha**
Microcredit (MC)	5	0.87
Microsavings (MS)	8	0.92
Entrepreneurial skills training (ES)	6	0.75
Farmers Performance (FP)	5	0.93

Source: Questionnaire, 2018

Table 3.3 displays the reliability coefficients for all the constructs used in the study. Alpha reliabilities for all the scales were above 0.70, therefore meeting acceptance standards for research (Drost, 2004).

3.8.1 Model Specification

FP will be regressed on MC, MS and ES. As such the combined effect of the three independent variables i.e. microcredit, microsavings and entrepreneurial training skills, on the dependent variable (smallholder farmers performance) will be determined on Multiple Regression as:

Thus, the model $FP_i = \alpha_0 + ß_1MC_i + ß_2MS_i + ß_3ES_i + \varepsilon$…….……..…..…….

Where,

FPp – Rice farmer's performance,

α – Constant (autonomous performance),

MC –Microcredit,

MS – Microsavings,

ES – Entrepreneurial skill trainings,

β1.. β3 – Coefficients of independent variables

ε – Error term

CHAPTER FOUR

DATA PRESENTATION AND ANALYSIS

4.1 Introduction

This chapter is specifically concerned with the presentation of the data. Which consist of preliminary analysis, data analysis and discussion of the findings of the study, which was carried out based on the data collected from the respondents.

4.2 Response Rate

Table 4.1

Summary of Administered Questionnaires

Response Rate of Questionnaire	**Frequency**	**Percentage (%)**
Number of questionnaires distributed	179	100%
Returned questionnaires	179	100%
Unreturned questionnaires	-	0%

Source: Researchers Computation 2018

Table 4.1 shows the questionnaire rate of return. The sample size for the study was 179, the researcher administered 179 questionnaires. The return rate was 100% as all respondents returned their filled questionnaire. The success rate of the questionnaire collection is attributed to the fact that the researcher distributed the questionnaires to each cooperative on the day they attended their voluntary meetings. The cooperatives have regular meetings which is compulsory for each individual member to attend. The group leaders from each of the local governments were contacted to enquire the day for their meetings; the researcher then went to each local government on their meeting day and administered the questionnaire to each individual member after their meeting. The group leaders served as research assistants as they assisted in facilitating the process.

4.3 Preliminary Analysis and Diagnostics Test

The data went through series of preliminary analysis before presented. The data collected were screened for missing values, data screening and outliers. Also, the assumptions of linear regression like normality, linearity, multicolinearity, homoskedascity and test for auto correlation were carried out before the test of hypothesis.

4.3.1 Missing Value Analysis

Missing data are questions without answers or variables without observations. In the case of large missing data, it may lead to unreliable result. Thus in order to determine the extent of missing values, all variables with missing values were examined. For the 24 variables in the SPSS output, 11 variables had missing data. For each variable, the percentage of missing data ranged from 1.1 percent to 0.7 percent, while for the entire data set which had a total of 4,296 data points and a total of 23 missing point, the overall percent of missing data was 0.5 percent. Hair , Black, Babin & Anderson (2014) recommended that missing data less than 10 percent for an individual case of observation can be ignored. Hence for the missing value analysis the data set was retained as there was no substantial case that warranted deletion. However, the missing values were replaced using mean substitution. Mean substitution is the widely used method in replacing missing values (Hair etal 2014)

4.3.2 Data Cleaning and Screening

Data screening was conducted through an examination of frequency distribution and descriptive statistics, the variables were examined with the aim of finding outliers. Values that were found to be out of range or were improperly coded were detected and a frequency test was run for every variable to identify any missing response. The study utilised box-plots to detect outliers, the

results of which no reasonable outliers were detected. Hence, all items in the data set were considered for analysis.

4.3.3 Test of Assumptions of Linear Regression

a. Normality

Among the statistical tests necessary to be conducted before significant and relational tests is to confirm the normality of the data to be utilized in the study. The normality test result revealed that the data has normal distribution as evidenced in the histogram and P-P plots, where all the bars of the histogram are close to a normal curve (See Appendix F).

b. Linearity

To check for linearity, the study used the residual scatter plot. If the assumptions are satisfied, the residuals should scatter around 0 or most of the scores shall concentrate in the centre along 0 point. The scatter plots for the residuals of our regression is displayed in Appendix G. The plot shows that the residual scores are concentrated at the centre along the zero (0) point, thus, suggesting the linearity assumption was not violated.

c. Multicollinearity

Another assumption of linear regression is that of multicollinearity. Multicollinearity increases the variance of regression coefficients and threatens the validity of the regression equation. In this study, multicollinearity has been examined between the independent variables using the Variance Inflated Factor (VIF) and tolerance values. It is generally accepted that any VIF that exceeds 10 or have a tolerance value lower than .10 indicates a potential problem of multicollinearity (Norusis, 1995).

Table 4.2

Variables	Tolerance	VIF
Microcredit	0.892	1.121
Microsavings	0.990	1.010
Entrepreneurial skills	0.901	1.110

Source: *SPSS Output 2018*

Table 4.2 shows the tolerance and VIF values for the independent variables. The VIF for all the variables, being less than 10 indicates the absence of any harmful multicollinearity among the independent variables.

The correlation analysis was also conducted prior to hypotheses testing in order to determine the extent to which the variables are related and to test for multicollearity. Cooper and Schindler (2003) noted that there is no definitive criterion for the level of correlation that constitutes a serious multicollinearity problem but opined that correlation of 0.8 or higher are problematic. The general approach is that it should not exceed 0.75 (Hair et al, 2014). The result in table 4.3 shows the absence of multicollinearity since the Pearson correlation indicators for all the variables are less than 0.75.

Table 4.3 Correlations

	MC	MS	ES	FP
MC	1	.101	.386**	.283**
MS	.101	1	.023	-.209**
ES	.386**	.023	1	.328**
FP	.283**	-.209**	.328**	1

Source: **SPSS Output 2018**

Table 4.3 shows the correlation coefficients between our respective variables, all of which have values that are less than 0.9 and greater than 0.1. This indicates that the variables correlate fairly enough to be used for the study.

d. Homoskedasticity

The homoskedasticity of the residuals is another assumption of linear regression. Homoscedasticity means having equal variances of dependent variable at each observation of the independent variable. This can be evaluated from the Partial plots. Where independence is assumed, it implies that the samples are not dependent on one another. The assumption of homoscedasticity requires that the variance of the dependent variable is the same at all values of independent variable or constant variance of the error term and the partial plots will show no discernible pattern (Vijay, 1999). These are fulfilled in the partial plots displayed in Appendix H.

e. Test for Auto Correlation

The assumption of no auto correlation of the error terms is also a requirement of linear regression. Norusis (1995) is of the opinion that Durbin-Watson can be used to test the independence of error terms. He added that the general rule of thumb is that if the Durbin-Watson value is between 1.5 and 2.5, the assumption of independence of the terms is not violated. The Durbin Watson coefficient stood at 1.925 (see table 4.15) approximately 1.5 which starts the benchmark. This indicates the absence of harmful serial correlation. This fulfils one of the assumptions of linear regression.

4.4 Descriptive Statistics

This section presents the descriptive statistics of the demographic attributes of the dependent variable, as well as the descriptive statistics of the independent and dependent variables. The

demographic attributes comprise the age, gender and educational background of the respondents. On the other hand, microcredit, microsavings and entrepreneurial skills training constitute the independent variable, while farmer's performance constitutes the dependent variable. While the analysis of the demographic characteristics is based on simple percentages, the analysis of the independent and dependable variables is predicated upon the following rule: 1-2.40 is rated below average, 2.41-3.40 is rated average and 3.41-5.00 is rated above average.

Table 4.4

Presentation of Demographics

Biodata	Responses	Frequency	Percent	Valid Percent	Cumulative Percent
Gender of Respondents	Male	179	100.0	100.0	100.0
Age Distribution of Respondents	18 – 25 years	1	0.6	0.6	0.6
	26 – 35 years	26	14.5	14.5	15.1
	36 – 45 years	48	26.8	26.8	41.9
	45 – 55 years	49	27.4	27.4	69.3
	56 – 65 years	33	18.4	18.4	87.7
	66 years and above	22	12.3	12.3	100.0
	Total	**179**	**100.0**	**100.0**	
Marital Status	Married	167	93.3	93.3	93.3
	Single	11	6.1	6.1	99.4
	Widowed	1	.6	.6	100.0
	Total	**179**	**100.0**	**100.0**	
Level of Education	No Formal Education	3	1.7	1.7	1.7
	Primary Education	6	3.4	3.4	5.0
	Secondary Education	78	43.6	43.6	48.6
	Tertiary Education	92	51.4	51.4	100.0
	Total	**179**	**100.0**	**100.0**	
Farming Experience	1-5 years	31	17.3	17.3	17.3
	6-10 years	62	34.6	34.6	52.0
	10 years and above	86	48.0	48.0	100.0
	Total	**179**	**100.0**	**100.0**	

Source: SPSS Output, 2018

Table 4.4 shows the demographic distribution of the 179 respondents. All the 179 respondents representing 100% are male. This shows that rice farmer's cooperative are predominately male whereas there may be females who also farm rice in Niger state.

Table 4.4 also shows the age distribution of the respondents. 1 respondent representing (0.6%) is between the ages of 18 and 25 years, 26 (14.5%) are between 26 and 35 years, 48 (26.8%) are between 36 and 45 years, 49 (27.4%) are between 45 and 55 years, 33 (18.4%) are between 56 and 65 years while 22 (12.3%) represented 66 years and above. This indicates that majority of the rice farmers are between the ages of 45 and 55 years old.

Table 4.4 also shows the marital status of the respondents. 167 respondents representing 93.3% are married, 11 respondents representing 6.1 % are single, and 1 respondent representing .6 % is widowed.

Table 4.4 also shows the level of education of the respondents. It shows that 3 (1.7%) respondents have no formal education, 6 (3.4%) of them has primary education, 78 (43.6%) have secondary education, and 92 (51.4%) have tertiary education. This implies that most of the respondents are literate.

Table 4.4 shows the farming experience of the respondents. 31 respondents representing (17.3%) have 1 to 5 years' experience of rice farming, 62 (34.6) have 6 to 10 years' experience, and 86 (48.0%) had above 10 years rice farming experience. This shows that a large percentage of the farmers had notable experience in rice farming.

4.4.1 Descriptive Statistics Variables

This section analyses the descriptive statistics of the responses of all the variables under study

Table 4.5
Descriptive Statistics: Variables

	N	Minimum	Maximum	Mean	Std. Deviation
Micro Credit	179	1.40	4.80	3.8045	.79208
Micro Savings	179	1.86	4.86	3.2155	.64590
Entrepreneurial Skills and Training	179	1.67	4.67	3.8417	.65943
Farmers' Performance	179	1.40	5.00	3.7553	.87372
Valid N (listwise)	179				

Source: Field Work, *2018*

Table 4.5 above shows the descriptive statistics for each of the variables concerned.

The average minimum for microcredit stood at 1.40 and the maximum value stood at 4.80. The average responses being 3.8045 which is above average (3.41-5.00) indicates that microcredit facilities are available to a large extent to the members of the rice farmers' cooperatives.

The average minimum for microsavings stood at 1.86 and the maximum value stood at 4.86. The average responses being 3.2155 which is above average (3.41-5.00) indicates that microsavings facilities are also available to a large extent to the members of the rice farmers' cooperatives.

The average minimum for entrepreneurial skills stood at 1.67 and the maximum value stood at 4.67. The average responses being 3.8417 which is above average (3.41-5.00) indicates that members of the rice farmers' cooperatives are adequately trained with entrepreneurial skills.

The average minimum for performance stood at 1.40 and the maximum value stood at 5.00. The average responses being 3.7553 which is above average (3.41-5.00). The results indicate high level of performance of smallholder rice farmer cooperatives in Niger state.

The Question on each of the variables are further discussed below.

Table 4.6 Descriptive Statistics: Micro Credit

	N	Minimum	Maximum	Mean	Std. Deviation
MC: Question 1	179	1	5	3.82	1.124
MC: Question 2	179	1	5	3.73	1.111
MC: Question 3	179	1	5	3.46	1.295
MC: Question 4	179	1	5	3.97	.914
MC: Question 5	179	1	5	4.05	.961
MC Average	**179**	**1.40**	**4.80**	**3.8045**	**.79208**

Source: Field Work, *2018*

Table 4.6shows the descriptive statistics for microcredit among smallholder rice farmer cooperatives in Niger state. It showed a mean response to question 1 is above average (3.41-5.00); this indicates that interest rate charged on loan given to smallholder rice farmers is convenient for them. The mean response to question 2 is above average (3.41-5.00); this indicates that loan repayment (microcredit) is convenient for the smallholder rice farmers. The mean response to question 3 is above average (3.41-5.00); this indicates that the loan amount given to smallholder farmers is sufficient for their farming requirement. The mean response to question 4 is above average (3.41-5.00); this indicates that the financial position of smallholder rice farmers has increased. The mean response to question 5 is also above average (3.41-5.00); this indicates that there is progress in the standard of living of the smallholder rice farmers in Niger state.

The average minimum for microcredit stood at 1.40 and the maximum value stood at 4.80. The average responses being 3.8045 which is above average (3.41-5.00) indicates that microcredit facilities are available to a large extent to the members of the rice farmers' cooperatives.

Table 4.7 Descriptive Statistics: Micro Savings

	N	Minimum	Maximum	Mean	Std. Deviation
MS: Question 1	179	1	5	2.30	1.275
MS: Question 2	179	1	5	2.49	1.256
MS: Question 3	179	1	5	4.19	.693
MS: Question 4	179	1	5	4.03	.789
MS: Question 5	179	1	5	2.50	1.605
MS: Question 6	179	1	5	3.59	1.335
MS: Question 7	179	1	5	2.83	1.457
MS: Question 8	179	1	5	4.18	.765
MS Average	**179**	**1.86**	**4.86**	**3.2155**	**.64590**

Source: Field Work, *2018*

Table 4.7 shows the mean responses to the questions on microsavings. Mean response to question 1 on affordability to save have below the average (1.00-2.40); this indicates that an average number of the respondents i.e. the smallholder rice farmers say that they cannot afford to save. Question 2 has a mean response of within average (2.41-3.40); this indicates that microsavings is time consuming for smallholder rice farmers. The response to question 3 is above the average rate (3.41-5.00); this shows that smallholder farmers will save more if their income is increased. Question 4 also above average response rate (3.41-5.00); this indicates that savings was a way to reach the farming goals of smallholder rice farmers. The response rate for question 5 is on an average (2.41-3.40); this indicates that smallholder rice farmers save only because they have to save. The mean response for question 6 is above average (3.41-5.00); this shows that smallholder rice farmers enjoy saving. The response rate for question 7 is between average (2.41-3.40); this indicates that smallholder farmers save because they are compelled to save by their cooperative. The response rate for question 8 is above average (3.41-5.00); this indicates that smallholder rice farmers will save more as they have learnt about saving.

In summary, the mean score of the questions related to microsavings are below, within and above average (1.00-2.40; 2.41-3.40; 3.41-5.00) which shows a high exhibition of microsavings with smallholder rice farmers in Niger state. The average minimum for microcredit stood at 1.86 and the maximum value stood at 4.86. The average responses being 3.2155 which is above average (3.41-5.00) indicates that microsavings facilities are also available to a large extent to the members of the rice farmers' cooperatives.

Table 4.8 Descriptive Statistics: Entrepreneurial Skills and Training

	N	Minimum	Maximum	Mean	Std. Deviation
ES: Question 1	179	2	5	4.19	.709
ES: Question 2	179	1	5	4.04	.803
ES: Question 3	179	1	5	3.75	1.221
ES: Question 4	179	1	5	3.54	1.167
ES: Question 5	179	1	5	3.40	1.252
ES: Question 6	179	1	5	4.13	.874
ES Average	**179**	**1.67**	**4.67**	**3.8417**	**.65943**

Source: Field Work, *2018*

Table 4.8 presents the descriptive statistics for entrepreneurial skills training .The table shows the mean response to question 1 to be above average (3.41-5.00); this indicates that majority of the respondents answered positively to the question; which means that they have recognized opportunities to their farming business. Question 2 also recorded an above average mean response of within average (3.41-5.00); which indicates that smallholder farmers have been creative in their farming activities. Also, question 3 have an above average response mean (3.41-5.00); which implies that smallholder rice farmers have improved on their farming practices. Just like the first three above, question 4 also recorded an above average mean response. This show that majority of the respondents agreed that they have developed networking skills in their farm business. The mean response to question 5 is also above average; which indicates that leadership and communication has improved within the smallholder farmer cooperative group. The mean

response to question 6 is above average as well indicating that small holder farmers have developed new ways of farming.

In summary, based on the mean responses on entrepreneurial skills training which were all above average, this suggests that entrepreneurial skills acquired by smallholder rice farmer cooperatives enable them to improve farming practices. The average minimum for microcredit stood at 1.67 and the maximum value stood at 4.67. The average responses being 3.8417 which is above average (3.41-5.00) indicates that members of the rice farmers' cooperatives are adequately trained with entrepreneurial skills.

Table 4.9
Descriptive Statistics: Farmers' Performance

	N	Minimum	Maximum	Mean	Std. Deviation
FP: Question 1	179	1	5	3.95	1.051
FP: Question 2	179	1	5	3.92	1.201
FP: Question 3	179	1	5	3.83	1.187
FP: Question 4	179	1	5	3.22	1.260
FP: Question 5	179	1	5	3.85	1.218
FP Average	**179**	**1.40**	**5.00**	**3.7553**	**.87372**

Source: Field Work, *2018*

Table 4.9 showed a mean response to question 1 on smallholder rice farmer's performance and is above the average (3.41-5.00); this indicates that the smallholder rice farmers sales volume is highly increasing. The mean response to question 2 is also above the average (3.41-5.00); this indicates that the profit of smallholder rice farmers has greatly increased. The mean response to question 3 is equally above the average (3.41-5.00); this indicates that smallholder farmers have been able to employee more labour on their farmland to increase production of rice. The mean response to question 4 is also above average (3.41-5.00); this implies that smallholder rice farmers have gain considerable market outreach of their produce as a result of commitment to

resources. The mean response to question 5 also above average (3.41-5.00), this indicates that smallholder rice farmers have been able to invest more in their farm.

In summary, the mean score of the 5 questions above shows that responses are above the average (3.50-5.00). The average minimum for microcredit stood at 1.40 and the maximum value stood at 5.00. The average responses being 3.7553 which is above average (3.41-5.00) indicates that microcredit facilities are available to a large extent to the members of the rice farmers'. The results indicate high level of performance of smallholder rice farmer in Niger state.

4.5 Factor Analysis

Factor analysis is used to find factors among observed variables. In other words, if a data set contains many variables, factor analysis can be used to reduce the number of variables by grouping variables with similar characteristics together. With factor analysis one can produce a small number of factors from a large number of variables which is capable of explaining the observed variance in the larger number of variables. The reduced factors can also be used for further analysis. However, factor analysis, according to Field (2005), is an exploratory tool which is meant to guide researchers to make various decisions, as such, the decisions regarding the variables yet lies in the court of the researcher.

The dependent variable of the study is farmer's performance which was measured using a total of 5 questions. The independent variable is microfinance service which is measured using a total of 19 questions grouped initially into three sub -variables: MC, MS and ES. 5 questions relate to MC, 8 questions relate to MS and 6 questions relate to ES. All the questions were factor analysed using SPSS Version 23. The output of the factor analysis is shown in Appendix C. The output

begins with a preliminary analysis of the table of Correlation Matrix and KMO and Bartlett's Test, as well as Factor extraction and rotation tables upon which decisions are based.

4.5.1 Correlation Matrix

The correlation matrix checks the pattern of relationships between the 4 groups of questions which are used to measure the variables. The significance or p-values for the questions within each initial grouping are all less than 0.05 which indicates a significant inter-correlation among them. Also, all the correlation coefficients within each initial grouping are all less than 0.9 and the determinant of the correlation matrix is 0.001 which is greater than the benchmark of 0.00001 (Field, 2005). All of these indicate that the sets of questions meant to measure the sub variables of the independent variable correlate fairly. Therefore, the study would not eliminate any question at this stage.

Table 4.10 KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.729
Bartlett's Test of Sphericity	Approx. Chi-Square	1537.444
	Df	276
	Sig.	.000

Source: *SPSS Output, 2018*

The KMO (Kaiser-Meyer-Olkin) Measure of sampling adequacy stood at 0.729 which indicates a good sample for which factor analysis is appropriate. According to Kaiser cited in Field (2005) KMO values greater than 0.5 are acceptable, while values below 0.5 indicates that more data should be collected.

The Bartlett's measure tests the null hypothesis that the original correlation matrix is an identity matrix. In this case, it stood at 1537.444 with a p-value of 0.000 which is less than the bench mark of 0.001 (Field, 2005), and therefore, factor analysis is appropriate.

4.5.2 Result of the Factor Analysis on Effects of Microfinance Services on Performance of Smallholder Rice Farmers in Niger state

Table4.11 Rotated Component Matrix[a]

	Component							
	1	2	3	4	5	6	7	8
FP: Question 2	.828							
FP: Question 5	.741							
FP: Question 3	.729							
FP: Question 1	.728							
MS: Question 1		.846						
MS: Question 2		.801						
MS: Question 5		.754						
MS: Question 7		.655						
MC: Question 2			.850					
MC: Question 1			.847					
MC: Question 3			.626					
ES: Question 4				.825				
ES: Question 5				.771				
ES: Question 3				.728				
FP: Question 4								
MC: Question 5					.854			
MC: Question 4					.822			
MS: Question 8						.752		
MS: Question 6						.625		
ES: Question 2							.776	
ES: Question 6							.761	
ES: Question 1						.515	.586	
MS: Question 4								.845
MS: Question 3								.618
Eigen Value	4.860	3.004	1.953	1.705	1.441	1.293	1.202	1.063
Percentage of Variance	20.251	12.517	8.137	7.104	6.005	5.387	5.009	4.427

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 10 iterations.

Source: *SPSS Output, 2018*

The Principal component analysis revealed the presence of 8 components with eigen values exceeding 1 (See Appendix C). This suggests that the 24 questions used to measure *the variable* can be grouped into 8 major variables as as shown in Table 4.6 above

It was earlier established that factor analysis is an exploratory tool which is meant to guide researchers to make various decisions. In line with the above, the study initially grouped the 24 questions/variables into four variables. Thus, the study retained the first four grouping of the variable into three variables, with the respective questions under them.

Table 4.12 Variables after Factor Analysis

Variable	Questions
Farmers' performance	FP: Question 2
	FP: Question 5
	FP: Question 3
	FP: Question 1
Micro Savings	MS: Question 1
	MS: Question 2
	MS: Question 5
	MS: Question 7
Micro Credit	MC: Question 2
	MC: Question 1
	MC: Question 3
Entrepreneurial Skills Training	ES: Question 4
	ES: Question 5
	ES: Question 3

Source: Factor Analysis, SPSS Output, 2018

4.5.3 Reliability after Factor Analysis

After making decisions regarding the suggestion of the factor analysis, a reliability test was conducted on the set of variables to be used for the analysis. The reliability of their responses was obtained using Cronbach's alpha for the 179responses.

Table 4.13 Reliability after Factor Analysis

Variable	Number of Items	Cronbach Alpha
Farmers Performance (FP)	4	0.804
Microsavings (MS)	4	0.782
Microcredit (MC)	3	0.803
Entrepreneurial skills training (ES)	3	0.762

Source: *SPSS Output, 2018*

From table 4.39 above, the reliability of the responses after factor analysis is shown. All the measures possess a high reliability standard judging from Cronbach's alpha, ranging from 0.762 – 0.804 for all variables which is considered reliable.

4.6 Multiple Regression Analysis

To test for the hypotheses formulated in this research, multiple regressions were used to determine the multiple effects of MC, MS and ES on FP.

Table 4.14

Regression Output 1

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	29.435	3	9.812	13.952	.000[b]
	Residual	123.073	175	.703		
	Total	152.508	178			

a. Dependent Variable: FPn
b. Predictors: (Constant), ESn, MSn, MCn

Source: *SPSS Output, 2018*

Table 4.13 shows the results from the multiple regression analysis which tests the effects of the independent variables on FP is shown. The F-statistic which measures the adequacy and fitness of the model used in the study stood at 13.952 with a p-value of 0.000^b which is significant at 5%; this shows that the model is fit for the data.

Table 4. 15

Regression Output 2

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.439[a]	.193	.179	.83861	1.925

a. Predictors: (Constant), ESn, MSn, MCn
b. Dependent Variable: FPn
Source: *SPSS Output, 2018*

Table 4.15 shows the summary of the multiple regression analysis. The empirical findings show that R, the multiple correlation coefficient stood at 0.439 which indicates a moderate correlation. R^2, the multiple coefficient of determination of the variables stood at 0.193 indicating that about 19.3% of the total variation in FP is explained by variations in the 'independent variables captured in the study. The adjusted R^2 being 0.179 also indicates that the independent variables will still explain 17.7% of the variations in FP even if other variables were added to the study.

Table 4.16

Regression Output 3

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	T	Sig.	Tolerance	VIF
1	(Constant)	3.242	.315		10.299	.000		
	MCn	.177	.067	.191	2.655	.009	.892	1.121
	MSn	-.270	.058	-.318	-4.666	.000	.990	1.010
	ESn	.191	.066	.206	2.885	.004	.901	1.110

a. Dependent Variable: FPn
Source: *SPSS Output, 2018*

4.7 Test of Hypotheses

Upon the fulfillment of the assumptions of linear regression analysis, multiple regression analysis is considered suitable in testing the research hypotheses. From Table 4.16 the model, the respective hypotheses are discussed as follows:

4.7.1 Hypothesis I

H_{01}: Microcredit does not have any significant effect on Farmers Performance.

The coefficient of "Microcredit" stood at 0.177 which is positive. This implies that an increase in Microcredit would lead to an increase in Farmers Performance. However, the significance of this can be judged from the t statistics and its significance.

The t statistics of "Microcredit" stood at 2.655 with a p-value of 0.009. The p-value is less than 0.05, indicating that the relationship depicted in the model is significant at 95% confidence level. This implies that the study does not have enough statistical evidence to accept the null hypothesis; hence the alternate hypothesis ($H_{11)}$ which states that Microcredit has significant effect on Farmers Performance is preferred.

4.7.2 Hypothesis II

H_{02}: Microsavings does not have any significant effect on Farmers Performance.

The coefficient of "Microsavings" stood at -0.27 which is negative. This implies that an increase in MS would lead to a decrease in Farmers performance. However, the significance of this can be judged from the t statistics and its significance.

The t statistics of “Microsavings” stood at -4.666 with a p-value of 0.000. The p-value is less than 0.05, indicating that the relationship depicted in the model is significant at 95% confidence level. This implies that the study does not have enough statistical evidence to accept the null hypothesis.

4.7.3 Hypothesis III

H_{03}: Entrepreneurial skill training does not have any significant effect on Farmers Performance.

The coefficient of “Entrepreneurial skills training” stood at 0.191 which is positive. This implies that an increase in Entrepreneurial skills training would lead to an increase in Farmers Performance. However, the significance of this can be judged from the t statistics and its significance.

The t statistics of “Entrepreneurial Skill training” stood at 2.885 with a p-value of 0.001. The p-value is less than 0.05, indicating that the relationship depicted in the model is significant at 95% confidence level. This implies that the study does not have adequate statistical evidence to accept the null hypothesis hence, alternate hypothesis ($H_{13)}$ which states that Entrepreneurial Skill training has significant effect on Farmers Performance is accepted.

4.8 Discussion of Findings

The study investigated the effect of microfinance services on performance of small holder rice farmers in Niger state. From the analyses of data, a number of findings were arrived at and are discussed as follows;

The descriptive analysis on microcredit in table 4.4 on performance of small holder rice farmer cooperatives in Niger state showed that the mean average of responses on microcredit is above average. This means that the more rice farmers gain access to microcredit, the higher their performance.

The mean analysis on microsavings in table 4.5 showed that the mean responses of smallholder rice farmers fall within average. This indicates that smallholder rice farmers in Niger state possessed average savings behavior such as; affordability to save, time to save the need to save.

The descriptive analysis on entrepreneurial skills training in table 4.6 showed that the mean responses of smallholder rice farmers in Niger state fall above average. This indicates that smallholder rice farmers in Niger state possess high entrepreneurial skills such as recognition of opportunity, creativity, problem solving, and leadership.

The descriptive analysis of the small holder rice farmer cooperatives performance in table 4.7 showed that the mean responses of small holder rice farmers in Niger state fall on above average. This shows that small holder rice farmers in Niger state are experiencing high performance in sales, profit; market outreach, hence they are performing well.

In the same vein, on the effect of microcredit on performance of smallholder rice farmers in Niger state, the findings showed that microcredit have positive significant effect on performance of smallholder rice farmer cooperatives in Niger state. This means that the more rice farmers gain access to microcredit, there is no recognizable effect on their performance. This view is consistent with Nosiru (2010); Tanko, Ajani and Adeniji (2012); Girabi and Mwakaje (2013); Nzomo, Muturi (2014).

On the effect of microsavings on performance of smallholder rice farmers in Niger state, the findings showed that microsavings have negative significant effect on performance of smallholder rice farmer cooperative in Niger state. This indicates that the more smallholder rice farmers engage in microsavings the lower their performance. This finding is supported by the study of Minibo (2013), and contradicts the study of Brannen (2010).

On the effect of entrepreneurial skills training on performance of smallholder rice farmers in Niger state; the study revealed that entrepreneurial skills training had a positive and significant effect on rice farmer's performance. This indicates that the more smallholder rice farmers gain entrepreneurial skills, the higher their performance. This is consistent with the findings of Wordofa and Sassi (2014); Alsharafat (2017); & Mujuru (2014).

4.9 Implications of the Findings

The results and findings from the analyses have certain implications to policy makers in the government and the microfinance industry. The followings are some managerial and theoretical implications of the study.

Managerial Implications

The study provided information on policy issues to regulators such as CBN, FAOSTAT, FMARD and MFIs being responsible for the formulation and implementation of policies regarding agriculture outside and within Nigeria. Thus, it provides a guide to them on the pattern of support to be provided to small holder rice farmers when it comes to the formulation and implementation of policies.

The study has been able to show some of the needed areas of rice farmer's performance. Thus the study has provided the relevant information the Niger state government needs in order to improve the performance of the rice farmers in the state. Thus the study provides a guide to the government on how to articulate strategies in improving rice farming in the state to achieve her quest of being the largest rice producing state in the country.

The study has also provided relevant information on the importance of the rice sector and the need for adequate investment into the sector. This will encourage other financial institutions like deposit money banks to have interest in financing rice farmers, thereby improving the performance of the small holder farmer.

The study serves as a guide to small holder rice farmers on how to build them in gaining the required apparatus in starting and growing their farms. Farmer's performance can be improved by accessing inputs like microcredit, micro savings and entrepreneurial skills training for their farms. The overall performance of small holder rice farmers can be improved by acquiring these services.

Theoretical Implication

The study has provided empirical evidence on the extent and pattern of relationship through the combination of microcredit, micro savings and entrepreneurial skills training under a single model. Therefore, the study will serve as a guide for more empirical research on microfinance.

Though there where mixed findings i.e some of the results were significant while others were insignificant, this has served as a foundation for more researches in the area as different results may be found if tested using a methodology different from what is used in this study.

The study introduced entrepreneurship training as a variable in improving performance of small holder rice farmers. This will spur up more researches in the area of farm entrepreneurship. This study will also serve as a guide for research institutes that are concerned with rice production, this would spur up more researches in this area.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary

Improving the performance of smallholder rice farmers in Nigeria especially rice producing areas like Niger State is an important policy goal, this is true because agriculture especially rice farming represents an important sector in the economy. Microfinance programs have being assumed to improve the performance of their beneficiaries, thus, this study was designed to examine the effect of microfinance services on performance of smallholder rice farmer in Niger state. Three hypotheses were formulated to guide the research thus: microcredit have no significant effect on performance of small holder rice farmer cooperatives in Niger state, micro savings have no significant effect on performance of small holder rice farmer cooperatives in Niger state ,entrepreneurial skills have no significant effect on performance of small holder rice farmer cooperatives in Niger state .

The study revealed that, microfinance institutions offer financial and non financial services to their clients. The financial services include microcredit, micro savings, and micro insurance. The non financial service includes, entrepreneurship skills training, financial training, advisory services. The study also discovered that smallholder farmers are the largest contributors to agricultural production in Nigeria. A review of empirical studies in the areas pointed out that no previous study used the three variables together in one study and it was found that no empirical study considered entrepreneurial skills training on a direct relationship.

The population of the study comprised of 179 registered rice farmers from the three rice producing local governments in Niger state (Bida, Paiko, Wushishi). Survey research design which was Cross sectional was employed in which questionnaires were distributed through hand

delivery to collect data. From the total of 179 questionnaires distributed, and the entire 179 questionnaires were usable which represents 100% of the total number of questionnaires distributed. The data was analyzed through descriptive and inferential statistics.

The three hypotheses were tested and descriptive result revealed that smallholder rice farmers in Niger state possessed average microcredit use, low savings behavior and high entrepreneurial skills; consequently, smallholder famers have high performance.

5.2 Conclusion

The findings revealed that microcredit have positive significant effect on smallholder rice farmer's performance. Therefore, this study concluded that the possession of microcredit may lead to an improvement in performance of rice farmers' in Niger state. Therefore, this study concluded that in order to achieve rice farmers' performance, farmers need to acquire required microcredit from financial institutions like the microfinance bank.

Micro savings have a negative effect on performance of smallholder rice farmers in Niger state. This implies that the more micro savings is encouraged, the less farmer performance. Rural people are usually reluctant to save with formal financial institutions. Therefore, this study concluded that micro savings have a low effect on smallholder rice farmer's performance in Niger state.

The finding further suggests that entrepreneurial skills training have significant positive contribution performance of smallholder rice farmer's in Niger state. Therefore, this study concluded that the possession of entrepreneurial skills training by smallholder rice farmers will improve the performance of smallholder rice farmers in Niger state.

5.3 Recommendations

Based on the findings of this study, the following recommendations can be put forward:

i. The finding revealed that Microcredit had positive significant effect on smallholder rice farmer cooperatives performance, microfinance institutions should increase the amount of credit they give with low interest rate charged. This will enable farmers request for higher loans thus expand farming and making it more productive and beneficial for the credit borrowers.

ii. The finding also established that micro savings have negative significant effect on rice farmers performance in Niger state, hence microfinance institution should encourage the farmers to create the culture of savings, this should not just be the voluntary group cooperative savings, but offer innovative programmes and schemes that will motivate small holder farmers to save.

iii. The finding also indicated that entrepreneurial skills training have positive significant effect on smallholder rice farmer cooperatives performance thus, financial institutions offering financial service to farmers should intensify efforts towards educating and enlightening them on entrepreneurial skills. This will go a long way in changing the narrative of subsistence farming in Nigeria to farming as a business establishment.

5.4 Suggestions for Further Study

Based on the limitations of the study, this research suggested the need for further studies taking the following into consideration;

The data collection was confined to only 179 smallholder rice farmers in Niger state. The replication of the study in different rice producing states of Nigeria would enable better generalization of the findings.

The study also adopted a cross-sectional design. Therefore, conclusions about the directions of causality implied in the model cannot be drawn; therefore, relationships among variables must be interpreted with caution. Thus, true causal inferences can only be drawn testing models using longitudinal data.

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APPENDIX A: Questionnaire Introductory Letter

QUESTIONNAIRE

Dear participant, I am a Postgraduate student of Ahmadu Bello University, Zaria conducting a M.Sc. dissertation on the '**Effect of Microfinance Services on Performance of smallholder rice farmers in Niger State**. I assure you that the responses you give would be treated with strict confidentiality. Thank you.

Instruction

Please tick ( ) where appropriate

Section A

1. Sex: Male ( ) Female ( )
2. Age (years) ----------
3. Marital Status: Married ( ) Single ( ) widowed ( ) divorced ( )
4. Level of Education: No Formal Education ( ) Primary Education ( )
Secondary Education ( ) Tertiary Education ( )
5. Farming Experience years 1-5 years ( ) 5- 10 years ( ) 10 years and above ( )

SECTION 2: Microcredit indicators

Evaluate the following statements by ticking the appropriate response box based on the scale below. **Please do not leave any item unpicked.**

5	**4**	**3**	**2**	**1**
STRONGLY AGREE	**AGREE**	**UNDECIDED**	**DISAGREE**	**STRONGLY DISAGREE**

	Microcredit	5	4	3	2	1
MC 1	Iinterest rate charged is convenient for you					
MC 2	Loan repayment is convenient for you					
MC 3	The amount given is sufficient for your farm.					
MC 4	Your financial position has increased					
MC 5	There is progress in your standard of living					

	Microsavings	5	4	3	2	1
SECTION A						
MS 1	I can't afford to save.					
MS 2	Savings is time consuming					
MS 3	I would save more if my farm income is increased					
MS 4	Savings is a way to reach my farming goal.					
MS 5	I save only because I have to.					
MS 6	Savings is something I enjoy doing.					
MS7	I save because of my farm cooperative					

	pressure to save.					
MS8	By learning about savings I would save more.					

	Entrepreneurial skills training	5	4	3	2	1
ES 1	I have recognized opportunities in my farm business.					
ES 2	I have been Creative in my farming activities					
ES 3	Improved in Problem solving					
ES 4	Developed networking skills					
ES 5	Leadership and communication has improved in my cooperative group					
ES 6	Development of new ways of farming					

	Performance	5	4	3	2	1
FP 1	My farm sales revenue has improved					
FP 2	My profit has increased					
FP 3	I have employed more labour					
FP 4	Market outreach					
FP 5	I've been able to invest more on my farm					

Appendix B–Reliability

Reliability

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	39	100.0
	Excluded[a]	0	.0
	Total	39	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.873	5

Reliability

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	39	100.0
	Excluded[a]	0	.0
	Total	39	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.754	6

Reliability

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	39	100.0
	Excluded[a]	0	.0
	Total	39	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.918	8

Reliability

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	39	100.0
	Excluded[a]	0	.0
	Total	39	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.928	5

Appendix C Descriptive

Frequencies

Statistics

		Gender of Respondents	Age	marital status	level of educ	farming experience
N	Valid	179	179	179	179	179
	Missing	0	0	0	0	0
Mean		1.00	49.09	1.07	3.45	2.32
Std. Deviation		.000	12.543	.281	.646	.775
Std. Error of Skewness		.182	.182	.182	.182	.182
Minimum		1	25	1	1	1
Maximum		1	83	3	4	5
Skewness			.230	4.063	-1.129	-.328

Frequencies

Frequency Table

Gender of Respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	179	100.0	100.0	100.0

Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	25	1	.6	.6	.6
	26	1	.6	.6	1.1
	27	1	.6	.6	1.7
	28	2	1.1	1.1	2.8
	29	3	1.7	1.7	4.5
	30	3	1.7	1.7	6.1
	31	1	.6	.6	6.7
	32	3	1.7	1.7	8.4
	33	4	2.2	2.2	10.6
	34	5	2.8	2.8	13.4
	35	3	1.7	1.7	15.1
	36	8	4.5	4.5	19.6
	37	6	3.4	3.4	22.9
	38	3	1.7	1.7	24.6
	39	5	2.8	2.8	27.4
	40	5	2.8	2.8	30.2
	41	1	.6	.6	30.7
	42	2	1.1	1.1	31.8
	43	6	3.4	3.4	35.2
	44	10	5.6	5.6	40.8
	45	2	1.1	1.1	41.9
	46	3	1.7	1.7	43.6
	47	5	2.8	2.8	46.4

	48	7	3.9	3.9	50.3
	49	4	2.2	2.2	52.5
	50	6	3.4	3.4	55.9
	51	5	2.8	2.8	58.7
	52	2	1.1	1.1	59.8
	53	7	3.9	3.9	63.7
	54	4	2.2	2.2	65.9
	55	6	3.4	3.4	69.3
	56	4	2.2	2.2	71.5
	57	3	1.7	1.7	73.2
	58	2	1.1	1.1	74.3
	59	6	3.4	3.4	77.7
	60	3	1.7	1.7	79.3
	61	4	2.2	2.2	81.6
	62	4	2.2	2.2	83.8
	63	3	1.7	1.7	85.5
	65	4	2.2	2.2	87.7
	66	6	3.4	3.4	91.1
	67	3	1.7	1.7	92.7
	70	5	2.8	2.8	95.5
	71	2	1.1	1.1	96.6
	72	1	.6	.6	97.2
	73	1	.6	.6	97.8
	74	1	.6	.6	98.3
	76	1	.6	.6	98.9
	77	1	.6	.6	99.4
	83	1	.6	.6	100.0
	Total	179	100.0	100.0	

Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18 – 25 years	1	0.6	0.6	0.6
	26 – 35 years	26	14.5	14.5	15.1
	36 – 45 years	48	26.8	26.8	41.9
	45 – 55 years	49	27.4	27.4	69.3
	56 – 65 years	33	18.4	18.4	87.7
	66 years and above	22	12.3	12.3	100.0
	Total	179	100.0	100.0	

marital status

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Married	167	93.3	93.3	93.3
	Single	11	6.1	6.1	99.4
	Widowed	1	.6	.6	100.0
	Total	179	100.0	100.0	

level of educ

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No Formal Education	3	1.7	1.7	1.7
	Primary Education	6	3.4	3.4	5.0
	Secondary Education	78	43.6	43.6	48.6
	Tertiary Education	92	51.4	51.4	100.0
	Total	179	100.0	100.0	

farming experience

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-5 years	31	17.3	17.3	17.3
	6-10 years	62	34.6	34.6	52.0
	10 years and above	86	48.0	48.0	100.0
	Total	179	100.0	100.0	

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error
MC: Question 1	179	1	5	3.82	1.124	-1.118	.182
MC: Question 2	179	1	5	3.73	1.111	-.958	.182
MC: Question 3	179	1	5	3.46	1.295	-.417	.182
MC: Question 4	179	1	5	3.97	.914	-1.505	.182
MC: Question 5	179	1	5	4.05	.961	-1.559	.182
Valid N (listwise)	179						

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error
MS: Question 1	179	1	5	2.30	1.275	.826	.182
MS: Question 2	179	1	5	2.49	1.256	.772	.182
MS: Question 3	179	1	5	4.19	.693	-1.398	.182
MS: Question 4	179	1	5	4.03	.789	-1.645	.182
MS: Question 5	179	1	5	2.50	1.605	.584	.182
MS: Question 6	179	1	5	3.59	1.335	-.868	.182
MS: Question 7	179	1	5	2.83	1.457	.074	.182
MS: Question 8	179	1	5	4.18	.765	-1.685	.182
Valid N (listwise)	179						

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error
ES: Question 1	179	2	5	4.19	.709	-1.246	.182
ES: Question 2	179	1	5	4.04	.803	-1.982	.182
ES: Question 3	179	1	5	3.75	1.221	-.718	.182
ES: Question 4	179	1	5	3.54	1.167	-.528	.182
ES: Question 5	179	1	5	3.40	1.252	-.435	.182
ES: Question 6	179	1	5	4.13	.874	-1.682	.182
Valid N (listwise)	179						

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error
FP: Question 1	179	1	5	3.95	1.051	-1.191	.182
FP: Question 2	179	1	5	3.92	1.201	-1.165	.182
FP: Question 3	179	1	5	3.83	1.187	-.892	.182
FP: Question 4	179	1	5	3.22	1.260	-.266	.182
FP: Question 5	179	1	5	3.85	1.218	-1.151	.182
Valid N (listwise)	179						

scriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
MC	179	1.40	4.80	3.8045	.79208
MS	179	1.86	4.86	3.2155	.64590
ES	179	1.67	4.67	3.8417	.65943
FP	179	1.40	5.00	3.7553	.87372
Valid N (listwise)	179				

Correlations

Correlations

		MC	MS	ES	FP
MC	Pearson Correlation	1	.101	.386**	.283**
	Sig. (2-tailed)		.180	.000	.000
	N	179	179	179	179
MS	Pearson Correlation	.101	1	.023	-.209**
	Sig. (2-tailed)	.180		.759	.005
	N	179	179	179	179
ES	Pearson Correlation	.386**	.023	1	.328**
	Sig. (2-tailed)	.000	.759		.000
	N	179	179	179	179
FP	Pearson Correlation	.283**	-.209**	.328**	1
	Sig. (2-tailed)	.000	.005	.000	

N	179	179	179	179

**. Correlation is significant at the 0.01 level (2-tailed).

APPENDIX D: Result of Factor Analysis of the Dependent

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.729
Bartlett's Test of Sphericity	1537.444	267.116
	276	10
	.000	.000

Communalities

	Initial	Extraction
MC: Question 1	1.000	.792
MC: Question 2	1.000	.795
MC: Question 3	1.000	.573
MC: Question 4	1.000	.782
MC: Question 5	1.000	.806
MS: Question 1	1.000	.795
MS: Question 2	1.000	.690
MS: Question 3	1.000	.673
MS: Question 4	1.000	.824
MS: Question 5	1.000	.615
MS: Question 6	1.000	.542
MS: Question 7	1.000	.586
MS: Question 8	1.000	.658
ES: Question 1	1.000	.681
ES: Question 2	1.000	.790
ES: Question 3	1.000	.603
ES: Question 4	1.000	.746
ES: Question 5	1.000	.689
ES: Question 6	1.000	.712
FP: Question 1	1.000	.566
FP: Question 2	1.000	.734
FP: Question 3	1.000	.605
FP: Question 4	1.000	.581
FP: Question 5	1.000	.682

Extraction Method: Principal Component Analysis.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.860	20.251	20.251	4.860	20.251	20.251	2.783	11.598	11.598
2	3.004	12.517	32.768	3.004	12.517	32.768	2.569	10.702	22.300
3	1.953	8.137	40.905	1.953	8.137	40.905	2.426	10.109	32.410
4	1.705	7.104	48.009	1.705	7.104	48.009	2.350	9.791	42.200
5	1.441	6.005	54.015	1.441	6.005	54.015	1.850	7.708	49.909
6	1.293	5.387	59.402	1.293	5.387	59.402	1.701	7.087	56.995
7	1.202	5.009	64.411	1.202	5.009	64.411	1.646	6.857	63.853
8	1.063	4.427	68.838	1.063	4.427	68.838	1.197	4.986	68.838
9	.865	3.605	72.443						
10	.815	3.395	75.839						
11	.727	3.029	78.867						
12	.628	2.615	81.482						
13	.616	2.565	84.047						
14	.570	2.374	86.421						
15	.510	2.126	88.547						
16	.451	1.877	90.425						
17	.380	1.582	92.006						
18	.363	1.512	93.518						
19	.345	1.437	94.955						
20	.291	1.213	96.168						
21	.269	1.123	97.291						
22	.230	.960	98.250						
23	.225	.936	99.186						
24	.195	.814	100.000						

Extraction Method: Principal Component Analysis.

Rotated Component Matrix[a]

	Component							
	1	2	3	4	5	6	7	8
FP: Question 2	.828							
FP: Question 5	.741							
FP: Question 3	.729							
FP: Question 1	.728							
MS: Question 1		.846						
MS: Question 2		.801						
MS: Question 5		.754						
MS: Question 7		.655						
MC: Question 2			.850					
MC: Question 1			.847					
MC: Question 3			.626					
ES: Question 4				.825				
ES: Question 5				.771				
ES: Question 3				.728				
FP: Question 4								
MC: Question 5					.854			
MC: Question 4					.822			
MS: Question 8						.752		
MS: Question 6						.625		
ES: Question 2							.776	
ES: Question 6							.761	
ES: Question 1						.515	.586	
MS: Question 4								.845
MS: Question 3								.618

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 10 iterations.

APPENDIX E: Reliability after Factor Analysis

Reliability
Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	179	100.0
	Excluded[a]	0	.0
	Total	179	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.804	4

Reliability
Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	179	100.0
	Excluded[a]	0	.0
	Total	179	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.782	4

Reliability
Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	179	100.0
	Excluded[a]	0	.0
	Total	179	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.803	3

Reliability
Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	179	100.0
	Excluded[a]	0	.0
	Total	179	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.762	3

APPENDIX F: Multiple Regression Result

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	ESn, MSn, MCn[b]	.	Enter

a. Dependent Variable: FPn
b. All requested variables entered.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.439[a]	.193	.179	.83861	1.925

a. Predictors: (Constant), ESn, MSn, MCn
b. Dependent Variable: FPn

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	29.435	3	9.812	13.952	.000[b]
	Residual	123.073	175	.703		
	Total	152.508	178			

a. Dependent Variable: FPn
b. Predictors: (Constant), ESn, MSn, MCn

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	3.242	.315		10.299	.000		
	MSn	-.270	.058	-.318	-4.666	.000	.990	1.010
	MCn	.177	.067	.191	2.655	.009	.892	1.121
	ESn	.191	.066	.206	2.885	.004	.901	1.110

a. Dependent Variable: FPn

Collinearity Diagnostics[a]

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions			
				(Constant)	MSn	MCn	ESn
1	1	3.790	1.000	.00	.01	.00	.00
	2	.133	5.339	.01	.86	.04	.08
	3	.048	8.894	.00	.02	.69	.63
	4	.029	11.455	.99	.12	.27	.29

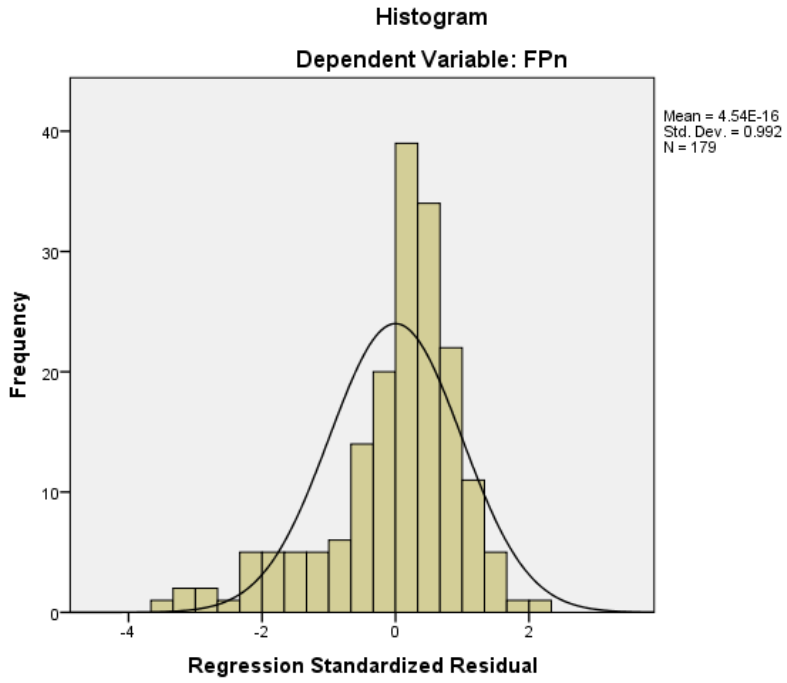
a. Dependent Variable: FPn

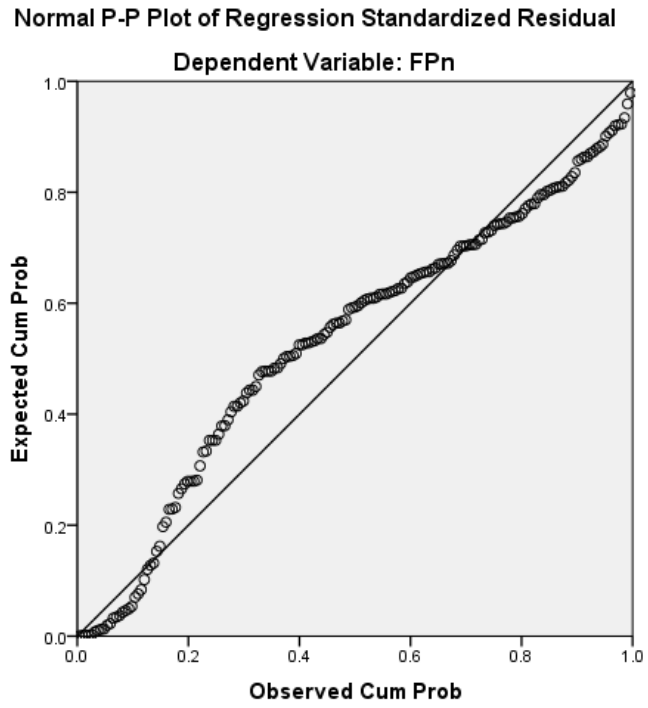
Residuals Statistics[a]

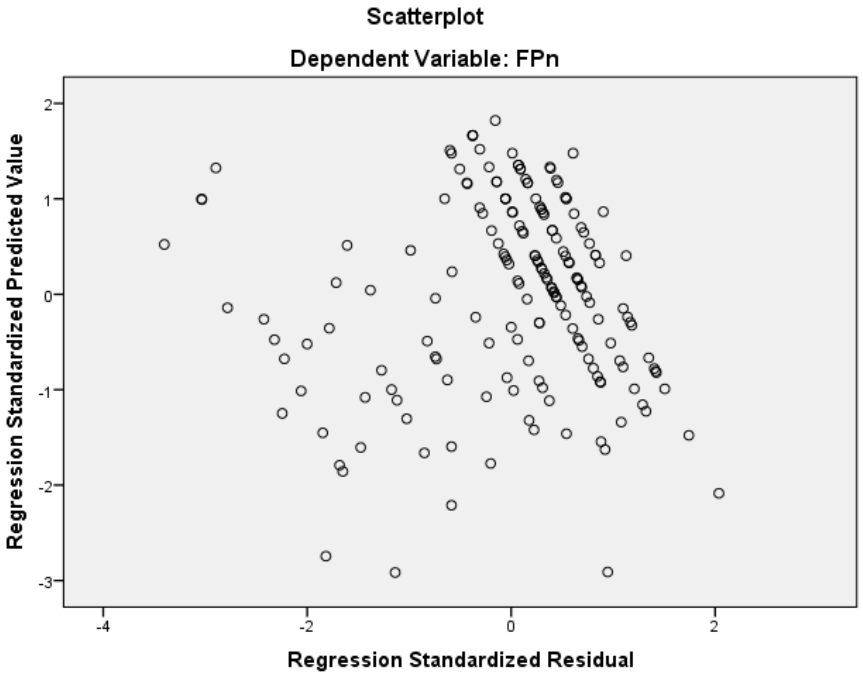
	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	2.7040	4.6304	3.8897	.40665	179
Residual	-2.85209	1.70831	.00000	.83152	179
Std. Predicted Value	-2.916	1.822	.000	1.000	179
Std. Residual	-3.401	2.037	.000	.992	179

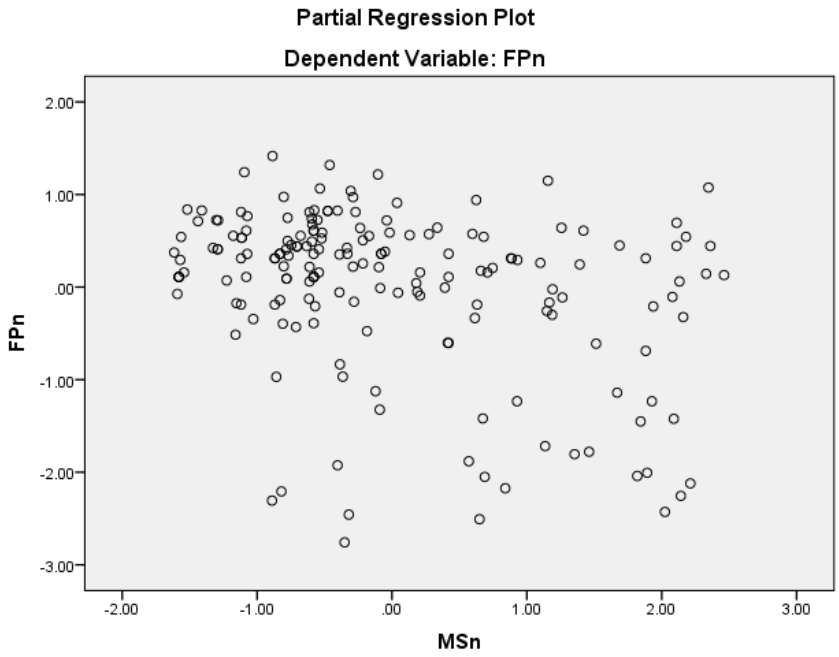
a. Dependent Variable: FPn

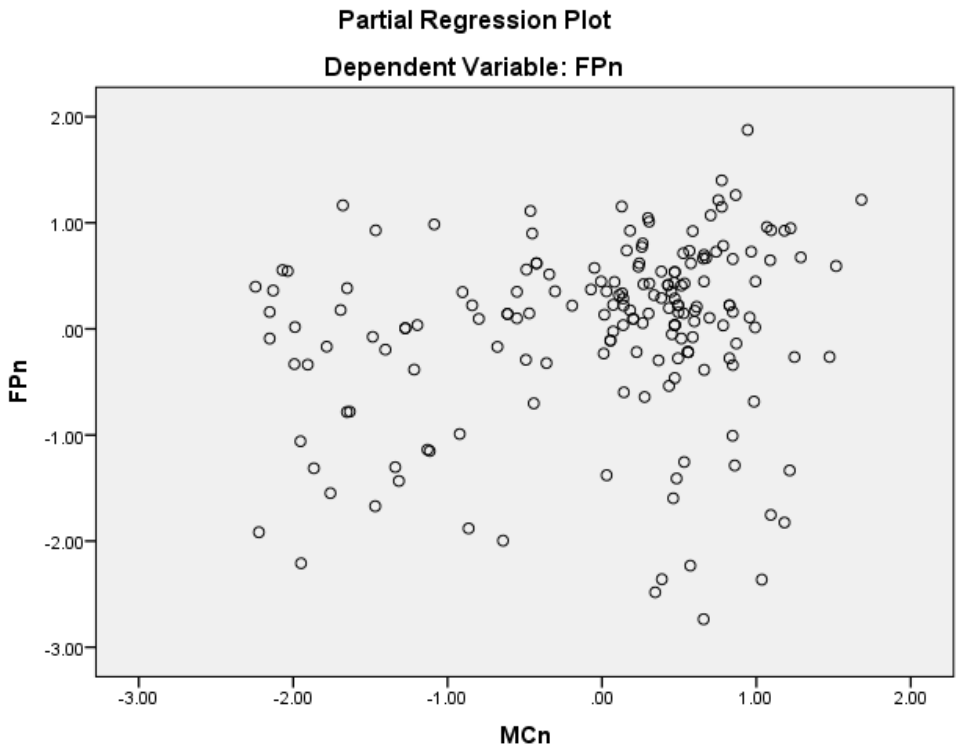
Appendix G Charts

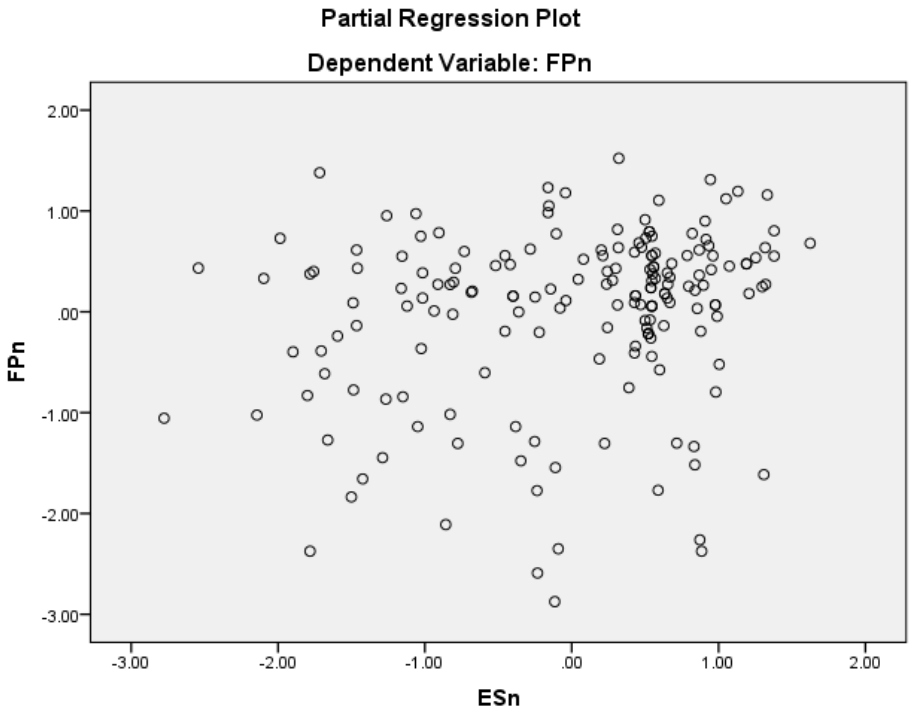



Normal P-P Plot of Regression Standardized Residual
Dependent Variable: FPn
Expected Cum Prob
Observed Cum Prob
0.0
0.2
0.4
0.6
0.8
1.0


Scatterplot
Dependent Variable: FPn
Regression Standardized Predicted Value
Regression Standardized Residual
2
1
0
-1
-2
-3
-4
2


Partial Regression Plot
Dependent Variable: FPn
FPn
MSn
2.00
1.00
.00
-1.00
-2.00
-3.00
-2.00
-1.00
.00
1.00
2.00
3.00


Partial Regression Plot
Dependent Variable: FPn
FPn
MCn
2.00
1.00
.00
-1.00
-2.00
-3.00


Partial Regression Plot
Dependent Variable: FPn
FPn
ESn
2.00
1.00
.00
-1.00
-2.00
-3.00