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INSTITUTIONAL MICROCREDIT SUPPLY AND POVERTY ALLEVIATION: CONTEXTUAL VIEW ON ARABLE CROP FARMERS IN NIGERIA

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ABSTRACT

The study investigated institutional microcredit supply and poverty alleviation in the context of arable crop farmers in Nigeria. Evidence from empirical studies shows that various efforts in Nigeria towards improving credit delivery to the agricultural sector over the years to alleviate poverty appear not to have been successful as incidence of poverty among farmers is still on the increase. Also, most of the works on credit delivery to the sector have focused mainly on the informal and public sector initiatives with little attention on the private sector, institutional microcredit providers. This study tried to fill these gaps and used both primary and secondary data. Tools used in analyses were trend equations and the FGT poverty measurement indices. The results showed that non beneficiaries of institutional microcredit were poorer than the beneficiaries of the credit. The results also showed that while institutional microcredit helped in improving the farmers' wellbeing by reducing their poverty gap and severity it failed to promote them out of poverty as incidence of poverty remained significantly unchanged. Based on these results, it was recommended that government should support institutional microcredit providers to ensure flow of credit to farmers on a more sustainable basis.

KEYWORDS: Institutional microcredit supply; arable crop farmers; poverty incidence, gap and severity.

I. INTRODUCTION

Background

Over the years, governments, private sector institutions, non-governmental organizations and other agencies in different parts of the world have created various financing vehicles and programmes to address the problem of paucity of investment capital and credit for the rural economy. The track record of such programmes has been mixed, especially with regard to reaching the poor. Reforms and innovations emerged in recent years to improve credit market opportunities for the rural poor and increase the efficacy of rural finance (Morduch and Haley, 2001; Kaino, 2007; Lamba, 2009). One such innovation is microcredit, or small loans targeting the poor, and this has transformed the way credit is viewed. Microcredit, according to Food and Agricultural Organisation (FAO) (2000), is intended to help the rural poor escape poverty by investing in their own small businesses including farms. Some microcredit schemes operated by financing institutions and non-governmental organizations (NGOs) overcome some of the problems of delivering rural credit to the poor by offering collateral-free loans at near-market interest rates (Bhatt and Tang, 2001; Yunus, 2007).

Extension of microcredit was institutionalized in 1976 by Muhammad Yunus, an American-educated Bangladeshi economist who had observed that a significant percentage of the world's population had been barred from acquiring the capital necessary to rise out of poverty (The Columbia Encyclopedia, 2007). Yunus set out to solve this problem through the creation of the Grameen Bank in Bangladesh. The Grameen Bank approach was unique because the small loans were guaranteed by members of the borrowers' community and pressure within the group encouraged borrowers to pay back the loans in a timely manner. Grameen's clients were among the poorest of the poor, many of whom had never possessed any money and relied on a barter economy to meet their daily needs (Yunus, 2002). Using microloans, borrowers were able to purchase livestock or start their own businesses. By 1996 Grameen had extended credit to more than three million borrowers and was the largest bank in Bangladesh, with more than 1,000 branches (Woller and Woodworth, 2002). According

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to Bhatt and Tang (2001), the success of microcredit in Bangladesh led to the emergence of similar programmes in other less-developed nations worldwide.

In Sub-Saharan Africa, microcredit has been viewed as a way to correct both governmental and market failures. Many view microcredit as a method for linking the formal and informal sectors of African economies to increase the reach of the formal sector (Chao-Beroff, 1997).

According to CBN (2005), the practice of microcredit in Nigeria is culturally rooted and dates back to several centuries. The traditional microcredit institutions provide access to credit for the rural and urban, low-income earners. They are mainly the informal self-help groups (SHGs) or rotating savings and credit associations (ROSCAs) types. Other providers of microfinance services at the informal level include savings collectors and co-operative societies. These informal financing institutions generally have limited outreach due primarily to dearth of loanable funds (CBN, 2005).

In view of the problem of funding in the informal financing sector, the Nigerian government had, over the years, formulated several economic policies and programmes as well as created several agencies and organs all in a bid to address the problem of funding for the agricultural sector in particular, and small and medium scale enterprises in general. Some of these programmes, according to CBN (2005), include the introduction of a commercial bill financing scheme; regional commodity boards (later called national commodity boards); an export financing and rediscount facility (1987). Others include the establishment of the Nigerian Agricultural and Co-operative Bank (NACB), National Directorate of Employment (NDE), the Nigerian Agricultural Insurance Corporation, the People's Bank of Nigeria (PBN), the Community Banks (CBs), the Family Economic Advancement Programme (FEAP), and the Directorate for Food, Roads and Rural Infrastructure (DFRRI). In 2000, Government merged the NACB with the PBN and FEAP to form the Nigerian Agricultural Co-operative and Rural Development Bank Limited (renamed Bank of Agriculture (BOA) in 2010) to enhance the provision of finance to the agricultural sector. It also created the National Poverty Eradication Programme (NAPEP). In 2005, the government introduced a liberalized microfinance policy with the mandate of providing financial services to alleviate poverty.

Apart from the above direct, public-sector initiatives, the Nigerian government had also taken steps to induce banks to increase the flow of credit to micro and small scale enterprises (MSSEs). Some of such steps, according to Okafor (2000), include the use of monetary and credit policies to compel or encourage banks to channel credit to the sector; introduction of credit schemes like Small-scale Industries Credit Scheme (SSIC) – 1971; the Agricultural Credit Guarantee Scheme (ACGS) – 1973; and the Small and Medium-scale Enterprises Loan Scheme (SMEX) 1992. Other similar measures include the Rural Banking Programme, sectoral allocation of credits, concessionary interest rates and the Small and Medium Enterprises Equity Investment Scheme (SMEIES).

However, despite these efforts at providing credit to the rural poor to alleviate poverty, the proportion of Nigerians living in poverty is increasing every year with over 38 percent of Nigerians still under the extremely poor category with incidence of poverty increasing from 27.2 percent in 1980 to 69.0 percent in 2010 (NBS, 2012). As indicated in Table 1, the 2010 head count index represented in absolute terms, 112.47 million people out of an estimated population of about 163 million people.

Table 1: Poverty trend in Nigeria (1980 – 2010)

Year	Poverty incidence (%)	Estimated population (million)	Population in poverty (million)
1980	27.2	65	17.1
1985	46.3	75	34.7
1992	42.7	91.5	39.2
1996	65.6	102.3	67.1
2004	54.4	126.3	68.7
2010	69.0	163	112.47

Source: National Bureau of Statistics (2012)

World Bank (2007) reported that the incidence of poverty in Nigeria was more pronounced in the rural (with a predominant farming population) than urban areas.

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Institutional Microcredit

Many authors tend to view microcredit from a generic perspective – implying that they are all the same. This may be misleading as there are different categories of microcredit providers which determine the size, cost, tenor and operational dynamics of the microcredit provided. According to Morduch (2002), many variants of microcredit have emerged as the geographical reach, clientele and aims of Microfinance organizations (MFOs) have expanded. Both in the conditions of lending and in the nature of the borrowers, microcredit is a hybrid of development tool and financial service. Okafor (2000) identified three categories of intermediaries involved in microcredit operations in Nigeria. These were: (i) the informal sector savings and credit associations (ii) public sector credit schemes and institutions and (iii) banks/ associated financial system institutions. According to him, savings and credit associations of different types abound in the informal economy while the public sector effort consists of two major initiatives namely: the setting up of credit schemes, specialized credit institutions and specialized banks like the Peoples Bank and Community banks (now, microfinance banks) to provide credit and other financial services to target groups and secondly, the use of monetary and credit policies to compel or encourage banks to increase the flow of credit to micro and small scale enterprises (MSSEs).

Marx (2001), using CBN categorization similar to the above, identified three groups of intermediaries involved in rural and micro-finance institutional framework in Nigeria. They were: formal, semi-formal and informal rural and micro-finance institutions (RMFIs). The Formal financial institutions/initiatives, according to him, were: commercial banks, Development Financial Institutions (e.g. NACRDB, NBCI, NIDB) and Public Sector Initiatives (e.g. SSICS, ACCIS, SMEX, NERFUND). The Semi-formal financial institutions were community banks (owned by communities) (Marx, 2001 and CBN, 2004). This category also includes microfinance banks which emerged following the introduction of a liberalized microfinance policy by government in 2005. The informal sector comprised unregistered informal Self-Help Groups such as: Rotating Savings and Credit Associations (e.g. Isusu (Igbo), Esusu/Bam (Yoruba), Adashi (Hausa), etc); unregistered production, saving and credit groups; co-operatives; family and friends. Eyo (2008) also stated that commercial banks traditionally provide loans with short maturities which are mostly small-sized loans used mainly for operational purposes. Available statistics support this position as over 68 percent of commercial bank loans fell under this category between 1980 and 1988 and over 80 percent between 1990 and 2010 (Eyo, 2008 and CBN, 2012).This type of loan, by definition, come under the microcredit classification. Also, Olowa and Olowa (2011) tried to make a distinction between macro and micro finance to the agricultural sector. According to them, the macro finance aspect pertains to financing of agriculture through government capital allocation using institutional agencies such as the Central Bank of Nigeria (CBN), Nigerian Agricultural, Cooperative and rural Development Bank (NACRDB) up to the rural Banking Development Programmes, while the micro-finance aspect pertains to the individual farm, especially financing of farm management, which relates to acquisition and use of capital in the farm business using commercial banks. Matovu (2006) also sees micro credit as small amount of money loaned to a client by a bank or other institution.

This work adopts the "banks/ associated financial system institutions" categorization by Okafor (2000) and therefore defines institutional microcredit as small-sized, short term operational credits provided by commercial and microfinance banks to individuals and small scale enterprises.

Statement of the Problem

The success of the Grameen bank in Bangladesh and other prominent microcredit programmes (e.g. ACCION's BancoSol in Bolivia, Bank Rakyat Indonesia (BRI), Unit Desa programme in Indonesia) in reducing poverty in most developing countries, triggered replication efforts in one form or another worldwide, including Nigeria.

In view of this development, there has been a plethora of research works on microcredit. However, most of these studies such as Oke *et al*. (2007), Nosiru (2010), Olaoye and Odebiyi (2010) and Ashaolu *et al* (2011) among others, were mostly location-specific and thus, could not present a holistic picture of the microcredit landscape in Nigeria.

Furthermore, while so much has been written on microcredit in general, available records show that very little work has been done on the subject of institutional microcredit yet, according to Bashir *et al*., (2007) and CBN (2012), estimates show that between 35 to 50 percent of the total credit requirements of the farm sector are met from the institutional credit sources. Some related studies like Ghati and Love (2006) and Okerenta and Orebiyi (2005) dwelt on structured commercial bank credits alone, while others like Yusuf *et al*. (2009) worked on the

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effects of the informal financial sector. Only few of the writers have presented a distinct picture of the activities of the institutional microcredit providers (the banks and associated financial system institutions) which account for a significant proportion of the microcredit supply to farmers.

Furthermore, according to Okafor (2000) and Olowa and Omonona (2008), the efforts of the Nigerian government at providing microcredit directly have been unable to provide a sustainable microcredit delivery system that is easily accessible to the target groups. On the other hand, the informal credit sector as has been variously reported (Okafor, 2000; CBN, 2005; Bashir *et al*., 2007) has also not been an effective vehicle for microcredit delivery because of the limited scope of their operations and funding. Focus on the private sector, institutional microcredit providers (commercial and microfinance banks) has therefore become necessary in order to carry out a comprehensive appraisal on the efficacy of microcredit as a credible tool in addressing the funding challenge in the agricultural sector in Nigeria.

Objectives

The main objective of the study was to analyse institutional microcredit supply and poverty alleviation in the context of arable crop farmers in Nigeria. The specific objectives were to:

1. examine the trend of institutional microcredit supply to farmers over the last forty years (1976 to 2015);
2. determine the effect of institutional microcredit supply to farmers on poverty incidence in Nigeria over the forty years period;
3. compare the levels of poverty (incidence, gap and severity) between farmer beneficiaries and non beneficiaries of institutional microcredit.

Hypotheses

The hypotheses were stated in their null forms as follows:

1. H_0: There was no significant growth in institutional microcredit supply to farmers in Nigeria over the last forty years (1976 – 2015);
2. Institutional microcredit supply to farmers did not have a significant effect on the poverty incidence in Nigeria;
3. H_0: There were no significant differences in the poverty levels (incidence, gap and severity) between beneficiaries and non beneficiaries of institutional microcredit.

II. EMPIRICAL LITERATURE

According to Soludo (2008) finance is the "poverty trap breaker" that allows the poor to access education, health, investment, etc more than current income can allow. Empirical evidence shows that, among the poor, those participating in microfinance programmes and had access to financial services were able to improve their well-being both at the individual and household levels much more than those who did not have access to financial services (Salehuddin, 2002 and Nosiru, 2010). It was reported by the Consultative Group to Assist the Poor (CGAP) (2009) that Bangladesh Rural Advancement Committee (BRAC) clients increased household expenditures by 28 percent and assets by 112 percent after being involved in BRAC's microcredit programme. The results showed that 52 percent of the BRAC member households were below the poverty line while a higher number (69 percent) of non- BRAC households were lying below the line. It was further reported that after more than eight years of borrowing, 57.5 percent of Grameen borrower households were no longer poor as compared to 18 percent of non-borrower households. Furthermore, it was reported that in Grameen Bank villages, the level of absolute poverty was 75 percent lower than in villages without such a programme (Khandker, 1996, Yunus, 2002). Also, in Lombok, Indonesia, the average income of Bank Rakyat Indonesia (BRI) borrowers increased by 112 percent and 90 percent of households graduated out of poverty. In Vietnam, "Save the Children" clients reduced food deficits from three months to one month. Also, at Kafo Jiginew in Mali, clients who had been with microcredit programme for as little as one year experienced a significantly less period of acute food insecurity (CGAP, 2009).

Access to credit allows farmers to procure the necessary inputs, land and implements required to increase their output and income and enhance their general well being. This is in line with the findings of Gatti and Love (2006) in their study on a cross-section of Bulgarian firms which showed that credit reduced poverty through the improvement in productivity. This view was corroborated by Bashir *et al.*,(2007). Rahman (2005) also stated that microcredit had helped in reducing poverty in Bangladesh and in the achievement of the MDGs objectives.

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Morduch and Haley (2001) analysed the effects of microfinance on poverty reduction in Canada on the basis of the Millennium Development Goals definition. The study reported that there was ample evidence to support the positive impact of microfinance on poverty reduction as it related to six out of seven of the Millennium Goals. In particular, there was overwhelming evidence substantiating a beneficial effect on income smoothing and increases to income. There was however, less evidence to support a positive impact on health, nutritional status and increases to primary schooling attendance.

Chowdhury (2005) evaluated the impact of microcredit on poverty in Bangladesh using a panel data approach. This was in a bid to eliminate "self-selection" bias associated with single-period, cross-sectional data. Based on data collected through a household survey by the author, both the subjective and objective poverty measures showed that micro-credit reduced poverty. The data indicated that the risk of poverty of the beneficiaries of micro-credit households was about 47 percent lower than that of the nonparticipants.

Cuong *et al* (2007) examined the impact of governmental microcredit programmes on poverty in Vietnam. The study found that although the programmes were not very pro-poor in its targeting given that the non-poor accounted for a larger proportion of the loan recipients than the poor, it had a positive impact on poverty reduction among the participants generally. The positive impact was found for all the three Forster-Greer-Thorbecke poverty measures.

Matovu (2006) explored the impact of microcredit on poverty alleviation among rural women in Uganda. Results from the study showed that all the women clients reported an increase in their incomes which had improved their standard of living, helped in sending their children to school; had been able to pay for their medical bills and feed their families. The study also reported that well functioning markets, entrepreneurial skills and other infrastructure, support microfinance to achieve results. The study therefore recommended more state intervention in the areas of creation of appropriate institutions (legal and financial) and investment in rural infrastructure.

Gyamfi (2011) reviewed the impact of microcredit on poverty reduction in Ghana. A summary of the main findings showed that microfinance and microfinance institutions played crucial roles in reducing poverty in the country but were fraught with lots of challenges. Some of such challenges listed by the study were high loan default rate and inadequate capital to sustain and cater for the growing number of clients.

Maikasuwa *et al* (2012) analysed the impact of micro-credit (*irkoy gomni*) on poverty alleviation among cattle fatteners in Kollo lga of Tillabery region, Niger republic. The study focused among other things on poverty status, access to basic services, assets acquisition of beneficiaries of the scheme and a set of non beneficiaries. A total of 100 beneficiaries and 100 non beneficiaries were selected using purposive and random sampling techniques. Data collected were analyzed using descriptive statistics, t-test and Foster, Greer and Thorbecke weighted poverty index. Findings showed that poverty was still high among respondents (69.5 percent). Beneficiaries had higher standards of living as compared to non beneficiaries. It was also observed that the incidence of poverty, poverty intensity and severity were low among the beneficiaries (64 percent, 25 percent and 13 percent respectively as compared to the non beneficiaries (75 percent, 33 percent and 18 percent) respectively. Value of total assets acquisition was significantly higher for beneficiaries than non beneficiaries. It may thus be concluded that micro-credit scheme had increased wealth and reduced the incidence of the poverty among beneficiaries. It was therefore recommended that the scheme should be expanded so that more cattle fatteners could benefit from it.

Ijaiya and Abdulraheem (2000) used a linear regression analysis to establish a link between commercial banks credit to the agricultural sector and poverty reduction in Nigeria. By way of calibration, the paper further examined the amount of credit that needed to be added to the agricultural sector to guarantee a reduction in poverty in Nigeria. The paper also suggested measures that were likely to improve on the existing strategies of credit disbursements by the commercial banks into the agricultural sector for poverty reduction to be achieved. Yusuf *et al* (2009) investigated the impact of the informal financial institution (Rotating Savings and Credit Associations ROSCAs) in reducing poverty among the people of Offa town in Kwara State, Nigeria. Using a set of household data, P-alpha-class poverty measure and a multiple regression analysis, the study showed that money received from ROSCAs helped in improving spending on food, housing (e.g. rents), health care, business activities which in turn helped the people in getting out of poverty. However, spending on asset accumulation, education and insurance were found to be inversely related to poverty reduction. The paper therefore

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recommended government intervention by augmenting the low-income earnings of members through the provision of soft loans (with very low interest) using co-operatives.

Oluwatayo (2010) tried to unravel how accessibility to microcredit helped in cushioning the effect of poverty in Ekiti State, Nigeria. Primary data collected from a total of 200 respondents with the aid of well-structured questionnaire included socioeconomic characteristics, monthly household income and expenditure from beneficiaries and non-beneficiaries of credit facilities. A multi-stage random sampling technique was used in this study while a number of analytical tools like descriptive statistics and poverty measurement tools were employed in the analysis. A relative poverty line was constructed based on the mean per capita household expenditure (MPCHHE) of the sampled respondents for each household group and different poverty thresholds were established. These were the Core poor, moderately poor and Non-poor. An assessment of the respondents' status before and after patronising the microcredit agencies indicated that there was a significant improvement in their standard of living as 24.5 percent indicated that their standard of living was good before they patronised the microcredit agencies while after patronising these agencies about 68.5 indicated that their standard of living was good. The study therefore concluded that for effective poverty alleviation among the poor in Ekiti State and Nigeria in general, microcredit programme was a veritable option at achieving this since it helped borrowers out of poverty. The study opined that success achieved in using microcredit as an instrument for poverty alleviation will, however, depend on proper choice of the type of income generating activities undertaken, accessibility to social amenities by the borrowers, and a thorough understanding of socioeconomic characteristics of the poor, among others.

Oluyole (2012) evaluated the impact of micro-credit projects on poverty alleviation using farming households in Ijebu-Ode Local Government Area of Ogun State, Nigeria as a case study. The study focused on the evaluation of community development as a result of the introduction of some microcredit projects. Structured questionnaires were used to collect information from the respondents in the farming households. The information collected included the socioeconomic characteristics of the respondents as well as the level of income of the beneficiaries before and after the microcredit projects. The collected data were analysed using descriptive statistics. The study showed that there was significant difference between the mean income of the beneficiaries before and after the micro-credit project. It therefore recommended that in as much as the project had positive effect on the income level of the beneficiaries, government should endeavour to encourage the communities with good poverty alleviation efforts and other communities should be sensitized on their roles toward assisting themselves by embarking on developmental projects that can alleviate their poverty.

Nwigwe *et al* (2012) provided a critical assessment of microfinance as a strategy for poverty reduction in Nigeria. It argued that while microfinance had developed some innovative management and business strategies and played an important role in providing safety-net and consumption smoothening, its impact on poverty reduction remained in doubt. It therefore postulated that for any significant dent on poverty, the focus of public policy should be on growth-oriented and equity-enhancing programmes, such as broad-based productive employment creation. It further posited that there was also need to design financial sustainable models that increases outreach and scale up operations for the poor. More so, financial inclusion agenda should be considered and adopted in a concerted manner.

III. MATERIALS AND METHODS

Study Area

This study was conducted in Nigeria. Nigeria has a total land area of 923,773 square kilometres and is richly endowed with abundant and diverse resources, both renewable and non-renewable. The country lies within latitudes 4^0 and 14^0 North and longitude 3^o and 15^0 East and is located in West African Sub-Region. It shares its borders with Chad and Niger Republic on the North; Cameroon on the East; Benin Republic on the West and the Atlantic Ocean on the South (Encyclopedia of the Nations, 2010). Nigeria is divided into six geo-political zones namely: South-East, South-West, South-South, North-East, North-West and North Central. Each of the country's 36 states and the Federal capital territory, Abuja fall into these zones. The country has a total of 774 administrative units called Local Government Areas (LGAs) as listed in Schedule 1 of the Constitution of the Federal Republic of Nigeria, 1999. Going by the 2006 census, the country has a population of 140 million people (CBN, 2007) with an estimated annual population growth rate of 2.8 percent.

Although it depends heavily on the oil sector for its budgetary revenues, Nigeria is still predominantly an agrarian economy as approximately 70 per cent of its population is engaged in agricultural production (NBS, 2012). Despite its enormous resources and potentials, poverty incidence is still very high amongst its populace

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(Encyclopedia of the Nations, 2010). Its basic indicators place it among the 20 poorest countries of the world (United Nations Development Programme (UNDP), 2009).

Data Type and Sources

The study employed both primary and secondary data. The secondary data were obtained for the macro-level (aggregate) variables for Nigeria and comprise: the annual volume of institutional microcredit supplied to farmers for a period of forty years from 1976 to 2015; the poverty incidence from 1980 to 2010 and the purchasing power parity figures for 2004, 2010 and 2015. These data were obtained or derived from publications of the Central Bank of Nigeria (CBN), National Bureau of Statistics (NBS)**,** the World Bank, CIA World Fact Book and World Data Atlas.

The required primary data obtained from the farmers directly included the socio-economic factors like the number and size of farmer households in the survey area; income and expenditure of the average household/farmer and the average per capita expenditure in the survey area. These were used in analyzing and comparing the poverty levels of the two farmer groups. The primary data were obtained from the farmers directly using well-structured interview schedules and were for 2014 and 2015.

Sampling Procedure

To obtain the primary data, three different population sets were sampled using a multi-stage approach. First, four geo-political zones (North Central, South West, South- South and South-East geo-political zones) were purposively selected in the country out of the six zones of Nigeria. The reason for choosing these zones was the concentration of microfinance banks (MFBs) and arable crop farmers in the zones (over 90 percent of the listed MFBs in Nigeria operated in these zones). From each of these zones, two states, again, based on the concentration of MFBs criterion, were selected purposively giving a total of eight states from the four geo-political zones namely: Lagos and Ogun states from the South West; Delta and Rivers states from the South-South; Imo and Anambra states from the South-East and Kogi and Benue from the North Central.

In the second stage, a sample of institutional microcredit providers (IMPs) was selected. The IMPs were divided into two main groups or strata. The first group referred to specialized banks set up for the specific purpose of facilitating microcredit delivery. The Microfinance Banks (MFBs) were selected under this grouping. The second group or category referred to commercial banks (CBs) which also provide microcredit in compliance with government-induced monetary and credit policies and programmes. There were 948 microfinance banks and 5445 commercial bank branches in the country (CBN, 2016) giving a total population of 6393 IMPs.

The sample size for each category of IMPs was obtained by means of tabulated values and computations of sample size following Yamane (1967), Israel (1992) and Eboh (2009). The equation for computing sample size using the tabulated value method is:

$$n = \frac{N}{1+N(e^2)} \quad \ldots \qquad (1)$$

Where,
n = sample size;
N = the population (or sampling frame) from where n is derived;
e = level of precision (in percentage).

The model is asymptotic (i.e. n tends towards a limit value as N increases indefinitely). Thus, for the IMPs the sample sizes derived (at 5 percent precision level) were 373 commercial bank branches and 281 microfinance banks making a total of 654 IMPs. The samples were then selected randomly from the eight states on the basis of their relative number of IMPs.

To obtain samples from the population of farmer beneficiaries, names of farmers who had borrowed from the IMPs between 2014 and 2015 were obtained from the sampled IMPs across the states and sample sizes determined for each state using the formula in equation (1). A total sample size of 394 was obtained using simple random sampling (SRS) selection technique.
In order to draw a sample of the non beneficiaries, the kindred from whom the credit beneficiaries were chosen formed the study locations. With the assistance of kindred heads and other informants, the list of farmers in such kindred that had not received institutional microcredit was compiled. The lists from the different kindred formed the sampling frames from which a farmer was selected. This summed up to 394 non beneficiaries for the study.

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Thus, a total of 788 farmers were chosen across the states for the study by simple random sampling (SRS) as shown in Table 2.

Table 2: Distribution of IMPs, credit beneficiaries and non-beneficiaries by state

State	IMPs	Credit beneficiaries	Non beneficiaries	Sample size
Imo	36	38	38	76
Anambra	70	43	43	86
Delta	44	36	36	72
Rivers	51	32	32	64
Lagos	316	83	83	166
Ogun	47	90	90	180
Kogi	23	43	43	86
Benue	67	29	29	58
Total	654	394	394	788

Source: Compiled from field survey 2015

Collection of Primary Data

The primary data were obtained by means of pre-tested interview schedules which were administered on the chosen samples of 394 credit beneficiary and 394 non- beneficiary farmers. Actual data collection lasted from November 2014 to December 2015 and was done by 24 trained enumerators. At the end of the fieldwork, 304 of the research instruments from the credit beneficiaries and 286 of the non-beneficiaries were found useful for analysis.

Methods of Data Analysis

For objective (1), a table was used to show the trend of institutional microcredit supply to farmers in Nigeria over a forty- year period – 1976 to 2015.

Secondly, the trend analyses were strengthened by the use of growth rate equation to compute the mean growth rate for different five-yearly intervals within the forty-year period. This equation is as shown below (Onyenweaku and Okoye, 2005; Nmadu, 2009):

$LnY = \alpha + \beta t \ldots$ (2)

Where,

Ln = natural log

Y = Annual Volume of institutional microcredit supplied to the agricultural sector (Naira)

α = the intercept

t = time trend (in years)

β = coefficient of t which shows the rate of growth.

For objective 2, to determine the effect of institutional microcredit supply to farmers on the poverty incidence in Nigeria over the forty years period, a table was also used to compare the trend and growth rate of institutional microcredit supply to farmers to the poverty incidence data reported by the Nigerian Living Standard Survey (NLSS) (NBS, 2012) over the forty-year period.

Furthermore, the effect of institutional microcredit supply to farmers on the poverty trend in Nigeria was analysed using a simple linear regression model following Omonona (2009).

$Pi_t = \beta_0 + \beta_i Imc_t + \mu_t \ldots$ (3)

Where,

Pi_t = poverty incidence (%)

Imc_t = average growth rate of institutional microcredit supply (%)

μ_t = error term in which all the other determinants of poverty have been subsumed for simplicity.

β_0 and β_i are the model parameters estimated.

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To compare the poverty incidence, gap and severity of farmer beneficiaries and non beneficiaries of institutional microcredit (objective 3), the conventional FGT (Forster, Greer and Thorbecke) model (Forster *et al.*, 1984) was used following NBS, (2007) as stated below:

Foster-Greer-Thorbecke (FGT) Index:

$$P_\alpha = \frac{1}{N}\sum_{i=0}^{n}\left(\frac{Z-Y_i}{Z}\right)^\alpha \quad \ldots \quad (4)$$

where,

P_α = Poverty intensity or severity

N = Number of households in the group of interest (i.e. beneficiary or non beneficiary).

Y_i = annual per capita expenditure of the ith household (Naira)

Z = Poverty line and is measured in the same unit as Y_i.

α = the FGT index or degree of poverty aversion that takes on the values 0, 1 or 2.

n = number of individuals below the poverty line obtained from Z.

For different values of (α), the index provides information on different dimensions of the poverty problems and so varying the parameter (α) from 0 to 2 simply shows that; when (α) =0, Pα is simply the headcount index and the formula becomes:

$$P_0 = \frac{n}{N} \quad \ldots \quad (5)$$

where n and N are as defined in equation (4). n/N is therefore the proportion of the population that falls below the poverty line. This is called the head count or incidence of poverty.

When (α)=1, Pα gives the poverty gap index and FGT becomes:

$$P_1 = \frac{1}{N}\sum_{i=0}^{n}\left(\frac{Z-Y_i}{Z}\right)^1 \quad \ldots \quad (6)$$

This is the percentage of expenditure required to bring each individual below the poverty line up to the poverty line. It is the distance of the per capita expenditure of the poor individual from the poverty line as a ratio of the poverty line.

when (α) =2, P_2 is simply the intensity or severity index and FGT becomes:

$$P_2 = \frac{1}{N}\sum_{i=0}^{n}\left(\frac{Z-Y_i}{Z}\right)^2 \quad \ldots \quad (7)$$

This indicates the severity of poverty by giving larger weight to the extremely (core) poor. This is done by squaring the gap between their expenditure and the poverty line in order to increase its weight in the overall poverty measure (NBS, 2005).

Descriptive statistics were used to examine poverty incidence (P_0), gap (P_1) and severity (P_2) differences between the beneficiaries and non beneficiaries of institutional microcredit and across states and geopolitical zones. The Z-test was used to determine whether there were significant differences between the mean P_0, P_1 and P_2 of the beneficiaries and those of the non- beneficiaries of institutional microcredit while, analysis of variance (ANOVA) was used to determine whether significant differences existed in the P_0, P_1 and P_2 of the zones. Following Pagano (2001), the Z-test and ANOVA equations were given as:

Z-cal =

$$\frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{S_1^2}{n_1} + \frac{S_2^2}{n_2}}} \quad \ldots \quad (8)$$

Where Z-cal = Z calculated

$\bar{X}_1$ = mean P_0, P_1 or P_2 of Beneficiaries

$\bar{X}_2$ = mean P_0, P_1 or P_2 of non beneficiaries

S_1^2 = P_0, P_1 or P_2 variance for the beneficiaries

S_2^2 = P_0, P_1 or P_2 variance for the non beneficiaries

n_1 = sample size of the beneficiaries

n_2 = sample size of the non beneficiaries

Analysis of variance (ANOVA):

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$$F\text{-cal}=\frac{S_B^2}{S_W^2}\ldots \quad (9)$$

Where F-cal = calculated F-ratio

S_B^2= estimated P_0, P_1 or P_2 variance between the zones = SS_B/df_B … (10)

S_W^2=estimated P_0, P_1 or P_2 variance within each zone =SS_W/df_W … (11)

SS_B = sum of squares between the zones =

$$\left[\left(\frac{\sum X_1}{n_1}\right)^2+\left(\sum\frac{X_2}{n_2}\right)^2+\left(\sum\frac{X_3}{n_3}\right)^2+\left(\sum\frac{X_4}{n_4}\right)^2\right]-\frac{(\sum X)^2}{N}\quad\ldots \quad (12)$$

df_B = degree of freedom between the zones = k-1 = 4-1 = 3

SS_W = sum of squares within zones =

$$\sum X^2-\left[\left(\frac{\sum X_1}{n_1}\right)^2+\left(\sum\frac{X_2}{n_2}\right)^2+\left(\sum\frac{X_3}{n_3}\right)^2+\left(\sum\frac{X_4}{n_4}\right)^2\right]\quad\ldots \quad (13)$$

df_W = degree of freedom within each zone = N-k = 8-4 = 4

Where,
X = P_0, P_1 or P_2 values of states in each zone
n = number of states in each zone
N = total number of states in all the zones
k = number of zones

while the subscripts 1,2,3 and 4 represent zones.

Decision rule: Reject H_0 if Z-cal or F-cal is higher than Z-tab or F-tab; otherwise, accept.

The first task in analyzing a poverty profile is to derive a poverty line. This is a predetermined or well-defined standard of income or value of consumption, which is deemed to represent the minimum required for a productive and active life or even survival (Okunmadewa, 1999; Omonona, 2009). It is the threshold of living standard that separates the poor from the non-poor. In the literature, there are two major approaches in determining the poverty line. These, according to Omonona (2009) are the absolute approach and the relative approach. The popular methods of estimating poverty line under the absolute or objective approach are the Food – energy Intake (FEI) and the Dollar per day methods (NBS, 2005). Both measures consider a household as poor if its consumption level is insufficient to acquire a given level of goods and services regarded as an essential minimum standard of living (Omonona, 2009). The relative measure, on the other hand, defines the poor in relation to others in the same society. It is usually measured as two-thirds of the mean per capita expenditure of the households in the population under study.

The poverty line used in this study is the Dollar per day approach as against the relative measure employed by many earlier works. Several reasons account for this choice namely: a) the Dollar per day approach is an objective measure in that it considers poverty in terms of internationally accepted standard (NBS, 2005); b) in view of a), it allows for international comparability of poverty indices; c) the relative poverty line measure, on the other hand, has been variously described as both subjective and arbitrary (Olaniyan, 2000; Omonona, 2009); d) being an absolute measure, the poverty line obtained from the dollar per day measure is usually fixed for a given period as opposed to the relative measure which varies with the population, income (or consumption) and location; e) the dollar per day and FEI measures provide comparable results which serves as a check; f) the Nigeria national living standard survey (NBS, 2012) generated an absolute poverty line which makes it possible to compare the result of this study with NBS published poverty profile for Nigeria.

The study also followed the per capita expenditure approach in measuring living standard instead of per capita income (World Bank,1996; Olaniyan, 2000; Omonona, 2001 and 2009; Olaniyan and Abiodun, 2005; Okunmadewa *et al*., 2005 and Oni and Yusuf, 2007). This is because the income approach is prone to many flaws, especially in Sub-Saharan African countries (Datt and Jolliffe, 1999; Omonona, 2009). For one, most people are reluctant to declare their true income and secondly, it is not really income that determines welfare but the amount spent on consumption. Thus, an analysis of poverty based on income may under or over-estimate the welfare of the household depending on whether consumption is supported by borrowing or repressed by thrift.

The poverty line used in this study was therefore computed as follows in line with NBS (2007):

- World Bank (2008) poverty line benchmark of US$1.25 per day was used
- The 2015 purchasing power parity (PPP) for Nigeria of N86.8 to the Dollar (World Data Atlas, 2016) was used to convert the World Bank poverty line to naira.
- This gave a poverty line per day of N108.5.
- This was annualized and gave a total expenditure threshold of N39,603 per person (i.e per capita expenditure (PCE)). Those who fell below this expenditure level were considered poor.

This study did not use the official dollar per day poverty line of N54,750 for Nigeria applied by Nigeria living standards survey (NLSS) of 2010 (NBS, 2012). This is because the NLSS survey merely used the exchange rate to compute poverty line which was inconsistent with their 2004 survey that adopted the PPP approach in line with international best practices. Moreover, the 2010 survey used US$1 dollar poverty line as against World Bank's current benchmark of US$1.25. Purchasing power parity conversion factor is the number of units of a country's currency required to buy the same amounts of goods and services in the domestic market as U.S. dollar would buy in the United States. Purchasing power parity constitutes one of the fundamental building blocks in modelling modern theories of exchange rate determination. Cassel (1916) opined that the nominal exchange rate should reflect the purchasing power of one currency against another. His proposal was that a purchasing power exchange rate existed between any two countries, and it is measured by the reciprocal of one country's price level against another. Aghevli (1991) shared a similar view and posited that the central tenet of the PPP is that the equilibrium exchange rate is proportional to the relevant purchasing power parity of national currencies involved. In his own contribution, Isard, (1978) argued that, as long as free movement of merchandise and a somewhat comprehensive trade between two countries takes place, the actual rate of exchange cannot deviate very much from this purchasing power parity".

IV. RESULTS AND DISCUSSION

The results of statistical and econometric analysis of data as well as the discussion of findings are summarized and presented in this section.

Trend of Institutional Microcredit Supply to Farmers in Nigeria

The trend of institutional microcredit supply to farmers in Nigeria was analysed in this section. The analysis was broken into two sub-sections to show:

a) the interval means and growth rate of institutional microcredit supplied to farmers over a forty-year period from 1976 to 2015;
b) growth trend of institutional microcredit supply to farmers and poverty incidence in Nigeria - 1976 to 2015;

Institutional microcredit supply 1976 – 2015

In this sub-section, the trend of institutional microcredit supplied to farmers over a period of forty years (from 1976 to 2015) was analysed. Table 3 shows the annual value of institutional microcredit supplied to farmers in Nigeria over the forty years period broken into five-yearly intervals.

Table 3: Mean value of institutional microcredit supply to farmers in Nigeria (1976 - 2015)

Year	Mean value (N'M)	Growth rate (%)
1976-1980	265.9	44.8
1981-1985	934.38	16.8
1986-1990	2,999.22	20.3
1991-1995	13,267.36	41.9
1996-2000	32,852.15	5.9
2001-2005	62,594.71	2.2
2006-2010	116,767.11	19.0
2011-2015	364,237.08	13.0

Source: Culled from CBN Statistical Bulletin (various editions).

The data shows that the mean value of institutional microcredit supplied to farmers in Nigeria was N265.9million representing an average annual growth rate of 44.8 percent. This growth rate was the highest in the entire forty years period under review and may be attributable to the post-war reconstruction agenda of the

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government of the period which was boosted by the oil boom windfall experienced in the country at the time. This period witnessed major increases in government expenditure which could have led to leaps in the deposit balances of banks and in turn, their credit creation capacity. A number of policies and programmes were also introduced by the government specifically to boost lending to the agricultural sector. Some of these policies were the sectoral allocation of credit which prescribed mandatory minimum lending to the sector; loan to rural areas, with similar objective and the agricultural credit guarantee scheme, to mention only a few. The mean value rose to N934.4million in the 1981 to 1985 period but this represented only 16.8 percent annual growth rate.

Institutional microcredit supply to farmers continued its upward trend but with some bit of modulation in the post-structural adjustment programme (SAP) deregulation period (1986 – 2000) with mean credit values of N2,999.22million, N13,267.36million and N32,852.15million for the periods 1986 to 1990; 1991 to 1995 and 1996 to 2000 respectively. The corresponding annual growth rates moved from 20.3 percent to 41.9 percent and down to 5.9 percent. This moderation tends to suggest that the deregulation of the SAP period did not favour agricultural lending. This is in line with the findings of Olowa and Olowa (2011) which held that the agricultural sector was disadvantaged in the liberalized credit market as credits moved to more profitable sectors. There appeared to be a freeze in agricultural credit from 1996 till 2005 as the period witnessed only marginal increases or outright decline in institutional microcredit supply to farmers. This may have been attributable to the banking sector crises of that period which culminated in the financial sector reform that began in 2004 and came into full effect in 2006. Not surprisingly, institutional microcredit supply witnessed a quantum leap from an average of N62,594.7million or 2.2 percent growth rate in the 2001 to 2005 period to N116,767.11million between 2006 and 2010 representing a 19 percent average growth rate. The figure for 2011 to 2015 was N364,237.08 million but with a reduced growth rate of 13%. This decline in the growth rate for the period may be an indication that the second round of financial sector reform and tight regulatory regime ushered in by the new CBN Governor, may have begun to take its toll.

Institutional microcredit supply and poverty trend in Nigeria

The trend of institutional microcredit supply reported in the preceding section, reflected in the general poverty trend in Nigeria over the same period. Table 4 compares the mean value of institutional microcredit supply to the agricultural sector to the poverty trend in Nigeria and showed that incidence of poverty in Nigeria increased from 27% in 1980 to 46% in 1985 but came down to 42% prior to the peak of the deregulation period in 1992.

Table 4: Mean value of institutional microcredit supply to farmers and Poverty Trend in Nigeria (1976 - 2015)

Year	**Mean value (N'M)**	**Growth rate (%)**	**Poverty Trend**	
			Year	**Poverty Incidence(Relative) %**
1976-1980	265.9	44.8	1980	27.2
1981-1985	934.38	16.8	1985	46.3
1986-1990	2,999.22	20.3	NA	NA
1991-1995	13,267.36	41.9	1992	42.7
1996-2000	32,852.15	5.9	1996	65.6
2001-2005	62,594.71	2.2	2004	54.4
2006-2010	116,767.11	19.0	2010	69.0
2011-2015	364,237.08	13.0	NA	NA

Source: Culled from CBN Statistical Bulletin (various editions).

Poverty incidence continued to worsen till 2004, the beginning of the financial sector reform period, when it declined to 54% which, though, was still much higher than the pre-deregulation period indices of 46% to 42%. Poverty incidence continued to worsen after 2004 to reach an all-time high of 69% in 2010. The above trend shows that on the average, there is an inverse relationship between institutional microcredit supply to farmers and the poverty incidence in Nigeria. This implies that poverty incidence increased as institutional microcredit supply to farmers declined and vice versa. This is in line with *a priori* expectation and supports the findings of (Khandker (1996), Yunus (2002), Rahman (2005), Gatti and Love (2006) and Gyamfi (2011).

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Table 5 shows the result of the regression analysis of institutional microcredit supply to the agricultural sector on poverty incidence in Nigeria. The result shows that the coefficient of institutional microcredit was negative and significant at 10%.

Table 5: Estimated effect of institutional microcredit supply on poverty incidence

Variables	Coefficients β	t-ratio
Intercept	64.989	8.29 ***
Inst. M/credit Supply (Imc)	-0.649	-2.25*
R^2	0.560	
Adjusted R^2	0.449	
F-ratio	5..08*	

Source: Computed from Survey Data. ***, and * is significant at 1% and 10% levels of probability respectively.

This shows an inverse relationship between institutional microcredit supply to farmers and the poverty incidence in Nigeria. In effect, as credit supply declined, poverty incidence which is the number of people below the poverty line increased. This result corroborates the result of the trend analysis and is in line with *a priori* expectation.

Table 6 below presents the 2010 poverty incidence of the zones and the national average using three different poverty measures: dollar per day (DPD), absolute and the relative. The table also ranked the zones in ascending order of their poverty incidences. The table shows that the South East was the least poor in terms of absolute and relative poverty incidences of 34.2 percent and 26.7 percent respectively. However, using the Dollar per day measure, South West was the least poor followed by South South while South East came third. North Central maintained the fourth position compared to the preceding three zones in all the measures.

Table 6: Incidence of poverty across geopolitical zones of Nigeria (2010)

Zone	Poverty incidence (percentage)			Ranking		
	DPD	Absolute	Relative	DPD	Absolute	Relative
South south	56.1	51.1	35.1	2	3	2
South east	59.2	34.2	26.7	3	1	1
South west	50.1	43.0	43.0	1	2	3
North central	59.7	63.3	67.0	4	4	4
North east	69.1	67.3	72.2	5	6	6
North west	70.4	63.9	71.2	6	5	5
National	61.2	60.9	69.0			

Source: Culled from NBS, 2012. Note: DPD = Dollar per day

Poverty Levels (Incidence, Gap and Severity) of Farmers

Analysis of poverty differences between beneficiaries and non beneficiaries of institutional microcredit

In this section, the poverty levels (incidence, gap and severity) of the two groups of farmers, the beneficiaries and non-beneficiaries of institutional microcredit, were analysed and compared across states and geopolitical zones using the conventional FGT index. The results are presented in Table 7. The results indicate that the South East zone with indices of 0.56 for the credit beneficiaries and 0.64 for the non beneficiaries, was the least poor in terms of poverty incidence. This was followed by South West zone with corresponding indices of 0.62, and 0.66. Institutional microcredit beneficiaries in the South West were however, the least poor in terms of severity with an index of 0.28 as against 0.29 reported for South East which ranked second. What this means is that although South West had more poor farmers than the South East, the standard of living of the average farmer in the South West was better.

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Table 7: Poverty indices (incidence (P_0), gap (P_1) and severity (P_2)) of sample farmers by state and geopolitical zones

Poverty indices						
	Incidence or head count (P_0)		**Gap or depth (P_1)**		**Severity (P_2)**	
National(DPD)*	0.61					
State/zone	BFs	NBFs	BFs	NBFs	BFs	NBFs
Imo	0.54	0.61	0.38	0.48	0.26	0.38
Anambra	0.58	0.68	0.43	0.54	0.32	0.49
S/East	**0.56**	**0.64**	**0.41**	**0.51**	**0.29**	**0.43**
Delta	0.69	0.65	0.46	0.54	0.31	0.45
Rivers	0.59	0.63	0.42	0.51	0.30	0.42
S/South	**0.64**	**0.64**	**0.44**	**0.53**	**0.31**	**0.43**
Lagos	0.53	0.53	0.33	0.45	0.21	0.38
Ogun	0.71	0.79	0.49	0.64	0.35	0.52
S/West	**0.62**	**0.66**	**0.41**	**0.54**	**0.28**	**0.45**
FCT	0.70	0.73	0.44	0.62	0.28	0.53
Kogi	0.73	0.82	0.55	0.66	0.42	0.53
N/Central	**0.71**	**0.78**	**0.49**	**0.64**	**0.35**	**0.53**
Pooled	**0.63**	**0.68**	**0.43**	**0.55**	**0.30**	**0.46**

Source: Computed from Survey Data, 2015. National (DPD)* is NBS Dollar per day poverty incidence for 2010. BFs – Beneficiaries; NBFs – Non Beneficiaries of Institutional Microcredit

In terms of the poverty gap index, both zones were tied at 0.41 for the beneficiaries which were the least for all the zones but South East had a slight edge over South West in the non beneficiaries' indices of 0.51 and 0.54 respectively. North Central was the most poor with corresponding indices of 0.71, 0.49, 0.35 and 0.78, 0.64 and 0.53 for beneficiaries and non beneficiaries respectively.

This result shows that 56 percent of the farmers who benefitted from institutional microcredit in the South East were poor as against 62 percent in South West and 71 percent in the North Central. In effect, North Central had the highest number of poor farmers among the zones while South East had the least. Soludo (2008), Omonona (2009) and Emenyonu (2011) also reported similar trends in the poverty profile of the zones in Nigeria. The result depicts that the South East and South West which received the highest credit in the survey period also recorded the least poverty levels. This tends to suggest that the higher the institutional microcredit supply the lower the poverty incidence. The result also shows that the non beneficiaries of institutional microcredit were poorer than their credit using counterparts. As high as 68 percent of the non credit using farmers were poor as compared to 63 percent of the credit users.

The same pattern held true for the depth and severity indices. The poverty gap or depth for the non-beneficiaries was 0.55 as against 0.43 for the beneficiaries while the severity indices were 0.46 and 0.30 for the two groups respectively. These results mean that the number of poor people among the non beneficiary farmers was higher than that for the beneficiaries; the expenditure levels and general living standards of the non beneficiaries were also worse than those of the beneficiaries. In effect, the average expenditure level of the non beneficiaries was farther below the poverty threshold than that of the credit beneficiaries. The result also meant that the intensity of poverty among the non beneficiary farmers was higher than that of the beneficiaries. These results were in line with *a priori* expectation and conforms with the findings of Soludo (2008) that finance is the "poverty trap breaker" that allows the poor to access education, health, investment, etc more than current income can allow. Access to credit allows farmers to procure the necessary inputs, land and implements required to increase their output and income and enhance their general well being. This is in line with the findings of Levine (2005) which posited that finance or credit influence long-run growth through its impact on investment decisions and technological innovation. Also, Gatti and Love (2006) from their study on a cross-section of Bulgarian firms, reported that credit reduces poverty through improvements in productivity. This

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view was corroborated by Bashir *et al* (2007). Rahman (2005) also stated that microcredit had helped in reducing poverty in Bangladesh and in the achievement of the MDGs objectives. These findings were also in conformity with the "Grameen experience" (Yunus, 2002) which showed that in Grameen (microfinance bank) villages, the level of absolute poverty was 75 percent lower than in villages without such a programme.

Hypotheses testing

The result of the Z-test and ANOVA for the poverty indices of the farmer beneficiaries of institutional microcredit are summarized and presented below

Table 8: Z-Test Results of Significance of Difference in the Poverty Indices between beneficiaries and Non beneficiaries of Institutional Microcredit

Indices	Absolute Z-cal	Z-tab	∝ - Level	Decision
P_0	1.17	2.36	0.05	H_0 Accepted
P_1	3.19	2.36	0.05	H_0 Rejected
P_2	5.33	2.36	0.05	H_0 Rejected

Source: Computed from survey data (2015)

Table 9: ANOVA Results of Test for Significance of Difference among the Zones in the Poverty Incidence of the Beneficiary Farmers

Indices	F-cal	F-tab	∝ - Level	Decision
P_0	1.46	6.59	0.05	H_0 Accepted
P_1	0.81	6.59	0.05	H_0 Accepted
P_2	0.65	6.59	0.05	H_0 Accepted

Source: Computed from survey data (2015

The result of the ANOVA test showed no significant differences in the poverty indices among the zones at 5 percent level with F-cal values of 1.46, 0.81 and 0.65 for incidence, gap and severity respectively, being much less than the F-tab value of 6.59. There was also no significant difference in the poverty incidence between the beneficiaries and the non beneficiaries of credit as the Z-test result showed a Z-cal value of 1.17 which was lower than the Z-tab value of 1.96 at 5 percent level of significance. The hypotheses that there were no significant differences among the zones and between the beneficiaries and non beneficiaries were therefore accepted. Institutional microcredit did not result in a significant change in the poverty indices among the zones nor in the poverty incidence between the beneficiaries and non beneficiaries of the said credit. These results were contrary to *a priori* expectation as the core objective of most microcredit programmes is to reduce poverty. The result was also contrary to the findings of many earlier studies (Khandker, 1996; Morduch and Haley, 2001; Yunus, 2002; Rahman, 2005). This is not surprising given that these researchers used absolute poverty indices in their analyses. However, in terms of other poverty parameters - gap and severity - the results showed significant differences between the beneficiaries and the non beneficiaries as the result of the Z-test showed Z-cal of 3.19 and 5.33 which were both higher than the Z-tab of 1.96 at 5 percent level of significance. The poverty gap and severity of the beneficiaries were significantly lower than those of the non beneficiaries. A reduced poverty gap means a bridging of the income gap between the average poor farmer and the non poor while a lower severity index means that the intensity of poverty is reduced. As people's income (or expenditure) levels improve so do their living standards, *ceteris paribus*, and so does the overall poverty condition improve. The implication of this result is that institutional microcredit succeeded in improving the living standards of the farmers by closing their poverty gaps and reducing the intensity of the poverty challenge among them but failed to promote the farmers out of the poverty threshold. In effect, the number of poor farmers did not reduce significantly whereas their income levels and hence, living standards improved as a result of using institutional microcredit. This is in line with the findings of Nwigwe *et al* (2012) who reported that microcredit played an important role in providing safety-net and consumption smoothening, but that its impact on poverty reduction remained in doubt. This is to be expected given that poverty, as reported by Ogwumike (2002), Osinubi (2003) and World Bank (2007), is deep-rooted among the farmers and rural population in Nigeria and would therefore require a sustained and concerted policy effort to eliminate. Such effort may take several years to make the desired impact and such a timeframe is far beyond the time period covered by this work which was based on two-year data. Therefore, to achieve the objective of significantly reducing the incidence of poverty among the farmers, it is expected that supply of institutional microcredit will be sustained over a long period to enable the farmers' consumption expenditure to gradually rise above the poverty line. This is based on the premise that microcredit will lead to

increased income, re-investment and more income until the farmer is ultimately promoted out of poverty (Rogally, 1999). The summary of this result is that institutional microcredit does not transform farmers from poverty to riches in the short run. Its effect on the poverty status of the farmers will only occur over the long run through a gradual improvement of the farmers' income and living standards over time.

The poverty indices for all the farmer groups (beneficiaries plus non beneficiaries) were much worse than the national average reported in 2010 of 61% (Table 6). This could be interpreted to mean that poverty is more pronounced among the farmers. This is in line with *a priori* expectation and consistent with the findings of Ogwumike (2002) that poverty in Nigeria is largely a rural phenomenon with farmers accounting for the highest incidence over the years. Also, World Bank (2007) and Omonona (2009) reported that the incidence of poverty in Nigeria was more pronounced in the rural areas (with a predominant farming population) than urban centers.

The result in Table 7 followed the same pattern as the zonal poverty incidence reported by NBS (2012) as shown in Table 6.

V. CONCLUSION AND RECOMMENDATIONS

This section summarises the report, highlights the policy implications and concludes the study.

Summary

This study analysed institutional microcredit supply and poverty alleviation in the context of arable crop farmers in Nigeria. Specifically, it examined the trend of institutional microcredit supply to the agricultural sector over the past forty years (1976 – 2015) and its effect on the poverty incidence in Nigeria and then compared the differences in the poverty levels (incidence, gap and severity) of farmer beneficiaries and non beneficiaries of the credit. The study used both primary and secondary data while statistical and econometric tools were employed in the analyses of data. The results showed that the rate of growth in institutional microcredit supply to the agricultural sector in Nigeria has, on the average, declined over the years and this has worsened the poverty incidence in Nigeria. However, institutional microcredit beneficiaries had better poverty conditions than their counterparts who did not benefit from the credit. Institutional microcredit supply helped in reducing the severity of poverty among farmers and improving their standard of living generally but failed to promote them out of poverty in the short run. Specifically, the findings are summarised below:

1. The result of the trend analysis of institutional microcredit supply to the agricultural sector in Nigeria showed:
   - i) nominal upward trend over the forty-year period from 1976 to 2015;
   - ii) however, mean growth rates were on the decline over the period;
   - iii) that as growth rates of institutional microcredit declined, poverty incidence (number of Nigerians below the poverty line) increased;
2. Comparison of the poverty levels of farmers showed that:
   - i) non beneficiaries of institutional microcredit were significantly poorer than their credit using counterparts. The poverty gap or depth and severity indices for the non-beneficiaries of 0.55 and 0.46 were found to be significantly higher than the 0.43 and 0.30 for the beneficiaries respectively;
   - ii) there was however no significant difference between the poverty incidence of the beneficiaries and that of the non beneficiaries;
   - iii) in view of the results in i) and ii) institutional microcredit succeeded in improving the living standards of the farmers by closing their poverty gaps and reducing the intensity of the poverty challenge among them but failed to promote the farmers out of the poverty threshold
   - iv) there were also no significant differences in the poverty indices of the credit beneficiaries across the zones.
   - v) in absolute terms, however,
     - the poverty incidence of the non beneficiaries was also higher than that of the beneficiaries. As high as 68 percent of the non credit using farmers were poor as compared to 63 percent of the credit users.
     - the South East zone was the least poor with poverty incidence, gap and severity indices of 0.56, 0.41 and 0.29 respectively for the beneficiaries and 0.64, 0.51 and 0.43 for the non beneficiaries.

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- South West was the second least poor with corresponding indices of 0.62, 0.41 and 0.28 for the credit beneficiaries and 0.66, 0.54 and o.45 for the non beneficiaries.
- North central was the most poor with corresponding indices of 0.71, 0.49, 0.35 and 0.78, 0.64 and 0.53 for beneficiaries and non beneficiaries respectively.

Policy Implications and Recommendations

A number of policy implications emerged from the findings of this study on the basis of which some recommendations were made. These are summarised as follows:

1. The results showed that non users of institutional microcredit were poorer than the beneficiaries of the credit. It follows therefore that policies that will enhance the flow of credit to farmers will help in reducing poverty among them and the overall poverty profile of Nigeria.
2. The result also showed that institutional microcredit does not reduce incidence of poverty in the short run. Efforts at ensuring a sustained flow of credit to farmers over a long time period should be encouraged so that farmers will be gradually promoted out of poverty.
3. The number of institutional microcredit providers in the states should be increased and more evenly distributed to improve the amount and spread of credit to those states as the result showed that states with high presence of IMPs also attracted the most credits.

These findings call for appropriate policy actions from government. Fundamentally, the results point to the fact that improved and sustained flow of credit to farmers will lead to improvement in the farmers' socio-economic well-being and reduction of poverty. The results of the study are in some cases consistent with and, in some others, divergent to existing research findings and therefore calls for more research work in this area. With these findings, it is expected that policy makers in Nigeria will find the study a good reference material. No doubt, further enquiry into the area of institutional microcredit supply and its effects on the poverty status of farmers has been stimulated by these findings

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