Effect of Microcredit on Poverty Reduction among Rural Farm Households in Northeast, Nigeria

Abstract

The paucity of empirical evidence to show the correlation between microcredit and poverty reduction in North-East, Nigeria led to the study on the effect of microcredit on poverty reduction among rural farm households. Multi-stage random and purposive sampling techniques were employed to select 200 farm households who constituted the sample size. Data were collected primarily using structured questionnaire and analysed with the aid of descriptive and inferential statistics. The results showed informal microcredit as the major source of credit for farm households. The result further indicated that 46 % of the loan applied for was disbursed, resulting to 47 % rise in farm household's income. Meanwhile, 62 % of farm households surveyed were poor with poverty depth of 0.43 and poverty severity at 0.38. The regression analysis on the effect of microcredit on the income of the farm households revealed that the coefficient of income was positive and statistically significant at 1% probability. The effect of microcredit on the poverty profile of farm households revealed that microcredit exerts negative influence on poverty profile of farm households in the study area. The study recommends: the establishment of robust rural credit scheme in rural areas; and institution of policy framework that will enable poor rural households without appropriate collateral to access funds for farm and non-farm activities.

Keywords: Microcredit, poverty reduction, rural farm households, Foster, Greer and Thorbecke

UNDER PEER REVIEW

Introduction

Nigeria has over 74 million hectares of arable land and a projected population of over 160 million people by 2015 with an active workforce of 56.6% (15 – 64 years of age) (Mimiko, 2011). Moreover, over 70 percent of her citizens are engaged in agricultural activities, nevertheless, the country is among the 25 poorest countries in the world with up to 69% of her population being poor (National Bureau of Statistics, 2012). Pinstrup-Anderson, Lorch and Rosegrant (2001) contended that poverty in Nigeria is largely a rural phenomenon. These authors asserted that 75% of the rural population lives on less than a dollar per day. In other words, poverty is skewed negatively towards rural areas. United Nation (2015) established that the number of rural poor is roughly twice that of the urban poor and that the depth of poverty was more than double in rural areas. National Bureau of Statistics (2012) reported that the average per capita expenditure of a poor rural household was one-fifth of the non-poor in 2010. He further maintained that of the extremely poor, 85 percent lived in rural areas and more than two-thirds are engaged in farm ventures at subsistence level. Income inequality is also worse in rural areas, with a Gini co-efficient of 45.6 compared with 39.9 for urban areas in Nigeria (World Bank, 1999). This level of poverty in the country is attributed to inadequate economic productivity and growth especially in agricultural sector. In the quest to overcome poverty rural households engage in economic ventures such as farming.

The fact remains that about 70 percent of the population of Nigerians especially the Northeast Nigeria live in the rural area and engage primarily in farming activities (NBS, 2011). This is an indication that the rural economy is an important component of the economy of Northeast of Nigeria. However, International Fund for Agricultural Development (IFAD) (2011) observed that there are a number of frequent problems hindering farming activities by the rural households. These include low productivity, low income, difficulty in accessing start-up capital and fund for enterprise expansion and growth funds to purchase

UNDER PEER REVIEW

farm inputs. These problems result to unemployment, rural-urban migration, malnutrition and poverty. The argument is if the rural economic entrepreneurs are empowered financially through loans, the rural economic activities will drive this nation's economy upward, thereby increasing employment, productivity, wealth, and reduce poverty.

Economic growth in farm enterprises is driven by ideas, intellectual capacities, entrepreneurship experience and technology. However, the major challenge of the people is capital. Capital resource such as finance is one of the principal factors of production. In support of this, Ezike (1999) contended that finance is the sixth sense that makes other senses to function effectively. Access to finance is a crucial motivation for agricultural and non-agricultural productivity. Farm enterprises in rural areas require unhindered access to credit to boost their economic activities. This is predicated on the fact that credit serves as the engine that drives other factors of production to attain higher level of growth. The pedagogy of microfinance revolves around poverty reduction and its fulcrum is microcredit given to the poor to stimulate economic activities. Microcredit refers to small loans. It is a component of microfinance in that it provides credit to the poor. Chowdhury (2009) noted that the promise of micro credit lies in its ability to empower poor people to work on their own to eradicate poverty while avoiding dependency. The aim of microcredit programmes is to meet the credit need of the rural poor through an effort to help them become self-employed in some form of income generating activities and lift themselves out of poverty. Thus, microcredit is one of the mantras of contemporary development initiatives world over.

The introduction of microcredit in Nigeria was based on the failure of the top-bottom formal financial institutions to address the credit needs of the rural poor households, thereby constraining the processes of investing for livelihood enhancement among the rural entrepreneurs. This credit gap created by formal financial institutions to give credit to rural entrepreneurs is filled by the micro-finance institutions. Despite the existence of several

UNDER PEER REVIEW

microcredit institutions such as microfinance, cooperative societies, Bank of Agriculture, money lenders etc, Northeast, Nigeria is still regarded as the zone with the highest rate of poverty in Nigeria (NBS, 2012). It is against this backdrop that this study assessed the effect of microcredit on poverty reduction among rural farm households in Northeast, Nigeria. Specifically, it analysed the sources and utilization of micro-credit by the rural farm households; determined the effect of micro-credit on the income of farm households in the area; and determined the effect of micro-credit on the poverty profile of rural farm households in the study area.

Methodology

This study was carried out in Northeast, Nigeria. Northeast Nigeria is made up of six States, namely: Adamawa, Taraba, Bauchi, Gombe, Borno and Yobe. It has a population of 18,984,299 million people and a land mass of 274,548.1 km^3 (NPC, 2006). The study adopted multistage random and purposive sampling techniques. In the first stage, four out of the six States were purposively selected. This was informed by the need to select only those States where there is relative peace considering the activities of Boko Haram sect in the zone. These States were Adamawa, Bauchi, Gombe and Taraba (see Table 1). In the second stage, twenty (20) Local Government Areas (LGAs) were randomly selected out of the total number of the LGAs in the selected four States. The selection was done proportionately using the total number of LGAs in each State. Based on this, the following LGAs were selected in each State: 6 LGAs in Adamawa, 6 in Bauchi, 3 in Gombe and 5 in Taraba to give a total of 20 LGAs. In the third stage, two electoral wards were randomly selected from the 20 LGAs to a give a total of 40 wards. Finally, 5 farm households who have benefitted from microcredit within the last 3 years were randomly selected from the lists of credit beneficiaries obtained from formal and informal credit institutions located in the forty wards. In selecting the

UNDER PEER REVIEW

respondents, efforts were made to reach out to Banks of Agriculture, microfinance banks, registered cooperative societies and informal credit organizations operational in the areas. Consequently, a total of two hundred (200) respondents were sampled for the study. Data for the study were collected using interviewers schedule based on structured questionnaire. Descriptive statistics was used to analyze objectives (i) and was further subjected to FGT index analysis, while objective (ii) was achieved using simple regression and objective (iii) was achieved with the aid of logit regression. F-test, Z-test was used to test the hypotheses.

UNDER PEER REVIEW

Table 1: Distribution of the Sampled States, LGAs and Wards in North-East Nigeria

States	Total No. of LGAs/State	No. of Sampled LGAs/State	No. of Sampled Wards/LGA	No. of Sampled Respondents/Ward	No. Sampled Respondents/ State
Adamawa	21	Numan	Mgbalan	5	
			Upalo	5	
		Lamurde	Rigange	5	
			Giwana	5	
		Demsa	Borong	5	60
			Bille	5	
		Mayo-Belwa	Gorobi	5	
			Wakka	5	
		Ganye	Sugu	5	
			Yebbi	5	
		Maiye	Konkol	5	
			Manjekin	5	
Bauchi	20	Katagum	Azake	5	
			Chinede	5	
		Zaki	Guika	5	
			Tashena	5	
		Misau	Zadawa	5	60
			Harsawa	5	
		Gamawa	Udibo	5	
			Gamawa	5	
		Darazau	Kari	5	
			Gabarin	5	
		Kirfi	Badara	5	
			Dara	5	
Gombe	11	Akko	Kumu	5	30
			Kashere	5	
		Balanga	Bam-bam	5	
			Dadiya	5	
		Billiri	Bangje	5	
			Billiri	5	
Taraba	16	Zing	Yakoko	5	
			Lama	5	
		Yorro	Lankaviri	5	
			Pupule	5	
		Takum	Dutse	5	50
			Chanchanji	5	
		Sardauna	Dorofi	5	
			Gembu	5	
		Jalingo	Kona	5	
			Sintali	5	
Total	68	20	40	200	200

UNDER PEER REVIEW

Model Specification

The Foster, Greer and Thorbecke (FGT) Index

The Foster, Greer and Thorbecke (FGT) index was used to determine the threshold which was used to categorize the level of poverty among non-farm households in the study area. The FGT index was computed with the aid of this formula stated below:

$$P\alpha = \frac{1}{n}\sum_{i=1}^{H}\left(\frac{Z-Y}{Z}\right)^{\alpha} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (1)$$

Where:

Z = poverty line

N = total Sample

H = the number of poor (below poverty line).

Y = average household monthly *per capita* expenditure

α = poverty index which takes value of 0, 1 and 2

(1) When α = 0, the poverty index (PID) becomes Head Count Ratio or Poverty Incidence Index (HCR or PII) i.e. the proportion of people below the poverty line. It was used to determine the number of households having *per capita* income below the poverty line. It is stated as: Po = $^{H}/n$.

Where:

H = the head count.

The PII (P0) gives the prevalence of poverty at a point in time.

(2) When α = 1, PID becomes the Poverty Gap Index (PGI) i.e. the aggregate short fall in income of the household from the poverty line. It measures the difference between actual income and minimum non-poverty income. The proportion of the poverty line

UNDER PEER REVIEW

(value) that the average poor require to meet the poverty line; the lower the value, the lower the poverty gap. The PGI (P1) gives the depth of poverty at a point in time.

(3) When $\alpha = 2$, PID becomes poverty severity index (PSI) i.e. PSI gives more weight to the poverty gap of the poorest. The closer the value is to 1 (100%), the harder the poverty condition of the household. The PSI gives the severity of poverty at a point.

Simple Regression Model

The simple regression model used to determine the effect of micro-credit on the income of farm households in the study area is explicitly stated as:

i. Model for farm households:

$$Y = \alpha + \beta X + et \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (2)$$

Where:

Y = Income of farm households (naira)

X = Amount of microcredit acquired by the farm households (naira)

α = Constant/ intercept

β = Coefficient

et = Stochastic error term

Results and Discussion

Sources and Utilization of Micro-Credit by Rural Farm Households

The source and utilization of micro-credit by rural farm households has been on the front burners of many financial analysts. Basically, credit can be secured either from formal or informal sources as shown in the analysis (Table 2). However, the bulk of micro-credit obtained by the respondents was from informal/unorganized sector. The inform sources of microcredit accessed by the farm households comprised rotatory club (isusu/adasu), money lenders, and relatives and friends. On the formal credit source, the most available source for

UNDER PEER REVIEW

farm households include: cooperative society and Bank of Agriculture with very insignificant contribution from the commercial bank. This is an indication that the rural farm households depend more on informal credit source for microcredit procurement and this have serious implication for farm investment as a result of the exorbitant interest rate inherent in the informal credit institution. However, the ease with which clients approach the credit principals may have explained the high dependency of farm households on informal credit. This is in congruous with the finding of Mohieldin and Write (2000) who identified the major sources of informal credit for rural farm and nonfarm households as family, friends, money lenders and savings from and off-farm income. On the contrary, Agbaeze and Onwuka (2014) reported that formal sources of microcredit are gaining prominence in microcredit delivery in the rural areas of Nigeria.

Meanwhile, it was observed that most of the farm households applied for an amount of between ₦100,001 – ₦200,000 while more than half (66.0%) of them obtained between ₦50,001 – ₦150,000. The mean amount applied was ₦272,750 whereas a mean of ₦127,225 was obtained. The analysis shows that only 46.6% of the total amount applied for by the farm households was released to them, leaving as high as 53.4% undisbursed. This is an indication that farm households received less than half of the total amount of credit applied. This has grave implication for farming activities because it limits the capacity of the farm households to procure technologies for improving productivity. Overall, the level of access to micro-credit in terms of amount disbursed to the rural farm households in the study area is generally low, considering the current economic reality in the country.

In support of this assertion, Okonkwo (2010) argued that demand for microcredit by rural households is hardly met. This is mostly due to their poor state and the fear of high loan default. Similarly, Agbaeze and Onwuka (2014) reported that rural households in Enugu State received a mean amount of ₦10,120.55 as against the mean loan request of ₦14,105.72.

UNDER PEER REVIEW

Aside from having access to credit, the amount of money rural households are able to borrow are equally of importance. Akinbode, Salami and Ojo (2013) opined that the amount of credit received by rural households is usually very meagre and not sufficient to make significant improvement in their investment. In furtherance to this, Adekoya (2014) noted that despite past and present efforts aimed at providing microcredit through the creation of agricultural development banks, special lending schemes, and the support of the growth of cooperatives and other self-help groups (SHGs), the supply of micro-credit in Nigeria is still inadequate in relation to demand. This suggests that there is some inefficiency in microcredit operations in Nigeria due to some institutional inadequacies such as undercapitalization, inefficient management and regulatory and supervisory loopholes. This invariably has inhibited the flow of micro-credit into agriculture (Adeyemi, 2008).

Table 2: Distribution of the Respondents According to Sources of Micro-Credit Accessed

Sources of micro-credit	Variable description	Freq. (n=200)*	Percentage
Formal	Commercial bank	10	5.0
	Bank of Agric.	52	26.0
	Cooperative society	64	32.0
Informal	Money lender	106	53.0
	Relatives & friends	102	51.0
	Rotatory club (Isusu/Adasu)	118	59.0
Amount applied	< 30,000	22	11.0
	100,001-200,000	87	43.5
	200,001-300,000	38	19.0
	> 300,000	53	26.5
Mean amount applied (₦)		*272,750*	

UNDER PEER REVIEW

Amount obtained	5000- 50,000	33	16.5
	50,001-150,000	132	66.0
	150,001-300,000	31	15.5
	Above 300,000	4	2.0
Mean amount obtained(₦)		*127,225*	*46.6%*

*Multiple responses recorded

Poverty Level of the Farm Households

The relative poverty index (RPI) approach was used to determine the poverty status of farm households in the study area. The RPI was computed as 2/3 of the monthly mean *per capita* expenditure. Based on the mean *per capita* expenditures of ₦13,670.2 for farm households, the RPI was determined to be ₦9,113.5. Consequently, any household with monthly expenditure below the poverty line (i.e. ₦9,113.5) were classified as poor while those with expenditures of ₦9,113.5 and above were classified as non-poor. Expenditure is known to play a very important role in the poverty level of household because it reflects the true level of actual income. Hence, expenditure is more preferable to income since incidental inflows like remittances and gifts, which do not occur regularly, are part of household income. Consequent upon these, the result shows the FGT poverty indices among the surveyed farm households. The poverty indicators were consistently high among households. For example, the head count ratio value of 0.62 was recorded among the farm households. This is an indication that about 62 % of farm households were poor (i.e. living below the World Bank minimum per capita daily expenditure of $1.25 (₦350.00)).

The poverty depth indicated a value of 0.43 was recorded for farm, suggesting that a mean farm household requires to up to 43% of $1.25 (₦350.00) per day for each household

UNDER PEER REVIEW

member to be able to escape poverty. The poverty severity shows 0.38, indicating the seriousness of poverty in the study area; because the closer this value is to one, the more serious the poverty in the area. The high proportion of poor households in the study area calls for urgent poverty policy intervention programmes for poverty alleviation in the area. This may not be unconnected with fact that poverty is largely a rural phenomenon (Pinstrup-Anderson, Lorch, and Rose, 2001). This justifies the finding of Umeh, Ogah and Ogbanje (2013), who reported that over 60.0% of small-scale farmers in Apa LGA of Benue State were below poverty line (poor). However, this finding contradicts that of Adepoju and Obayelu (2013), who reported that more than 50% of rural households in Ondo State were above poverty line (non-poor).

Table 3: Incidence, Depth and Severity of Poverty

FGT index	Farm households (n=200)
Incidence of poverty (P_0)	0.62
Depth of poverty (P_1)	0.43
Severity of poverty (P_2)	0.38

Effect of Microcredit on the Income of Rural Farm Households

Microcredit was expected to have significant effect on the income of the rural farm households. Result of the analysis shows that the coefficient of determination (R^2) was 0.765 which implied that about 76.5% of observed total variation in the income of farm households was attributable to changes in amount of microcredit available to the respondents. The high value of F-ratio (81.618) and the low value of standard error of the estimate (3.95315) signify the good fit of the model. The overall model was statistically significant ($P < 0.05$), implying

UNDER PEER REVIEW

that access to microcredit exerts significant influence on the income of the farm households in the study area.

The coefficient of micro-credit obtained by the farm households was positively signed and statistically significant at 1%. This means that enhancing microcredit acquisition will improve income generation of the farm households. Consequently, acquisition of micro-credit has brought about 37.9% marginal effects on income of the farm households in the study area. Again, the very high level of significance is an indication that access to microcredit is an important determinant of income generation among farm households. This finding agrees with that of Akwaa-Sekyi (2013) who observed that the mean income of farm households in Sunyani area of Ghana rose after the introduction of the credit from Gh¢257.73 Gh¢875.16. Similarly, studies by Hulme and Mosley (1996); and Copestake (2002) in Zambia found positive relationship between access to credit and income growth of the beneficiaries.

Table 4: Effect of Microcredit on the Income of Farm Households

Variables	Linear	Double-log	Semi-log	Exponential
Constant	192746.794	1925.514	1850.393	5915.706
	(11333.734)*	(2272.879)NS	(1732.314)NS	(331.135)*
Microcredit	0.379	0.595	0.601	3.456E-005
obtained	(0.042)*	(0.034)	(0.108)*	(0.000)*
R	0.806	0.780	0.780	0.735
R^2	0.765	0.608	0.608	0.697
Adj. R^2	0.663	0.606	0.604	0.695
Std. error est.	3.95315	7058.349	7076.178	0.337
F-ratio	81.618*	307.412*	152.934*	454.972*

* indicates significance at 1%.

NS indicates non significant

UNDER PEER REVIEW

Effect of Microcredit on Poverty Profile of Farm Households

The result of logit regression analysis as presented in Table 5 indicates that the coefficient of microcredit obtained was negatively signed but statistically significant at 1% level of significance. This implies that a unit increase in microcredit supply will decrease poverty profile of the farm households by 0.002 and vice versa. However, the significance of this variable is an indication that microcredit is a good determinant of poverty profile of farm households in the study area.

The overall logit model was moderately adequate as indicated by the values of Pearson Goodness-of-Fit (26.701) and the 2 Log likelihood (251.813). However, the overall model was statistically insignificant ($P > 0.01$); implying that microcredit does not exerts positive influence on poverty profile of the farm households in the study area. This may be explained by the small size of credit extended to the farm households in the area. The negative impact of lack/ inadequate access to credit facilities cannot be over-emphasized. Obadan (1997) and Adepoju (2005) have identified minimal access to credit and employment opportunities as major source of poverty in sub-Saharan Africa. Lack of access to credit has resulted in low acreages under cultivation, poor farm maintenance practices, inadequate or no fertilizer application which eventually led to poor yields and low income for the rural farmer (Akwaa-Sekyi, 2013). This lack of credit is also attributed to the uncertainty in farm input and output and the time lag between input and output. Thus until harvest time, farmers have difficulty meeting basic household demands (Rahji and Adeoti, 2010). This situation is further worsened by the near absence and under-representation of financial intermediation in the rural areas when compared to urban centres in Nigeria.

To further validate the result, the null hypothesis was tested and it showed Cox & Snell R^2 value of 0.009 and Nagelkerke R^2 value of 0.013 which were below 0.05 level of

UNDER PEER REVIEW

significance. Hence, Microcredit has no significant effect on poverty profile of the farm households in Northeast, Nigeria.

Table 5: Effect of Microcredit on Poverty Profile of Farm Households

Variable	Coefficient (β)	Std Error	Z	Sig.
Constant	-4.774	0.105	-45.263	*
Microcredit obtained (₦)	-0.002	0.000	-0.031	*
Pearson Chi-square	26.701			NS
2 Log likelihood	251.813			
Cox & Snell R^2	0.009			
Nagelkerke R^2	0.13			

Conclusion

The study concludes that microcredit acquisition significantly contributed to the income generation and assets acquisition of rural farm households but has no effect on poverty reduction of farm households in Northeast, Nigeria. Based on this the study recommends the establishment of robust rural credit scheme in rural areas; and institution of policy framework that will enable poor rural households without appropriate collateral to access funds for farming activities.

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UNDER PEER REVIEW

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UNDER PEER REVIEW

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UNDER PEER REVIEW