

## Income inequality and poverty among farming households in Southwest, Nigeria

<sup>1</sup>Akinlade, R. J., <sup>2</sup>Adeyonu, A. G. and <sup>3</sup>Carim-Sanni, A.

<sup>1</sup>Osun State University, Osogbo, Nigeria

<sup>2</sup>Landmark University, Omu Aran, Nigeria

<sup>3</sup>Nigerian Institute for Social and Economic Research, Ibadan Nigeria

E-mail: jummy120@yahoo.co.uk

**Abstract:** This study investigates income inequality and poverty among farming households. It relies on primary data collected from 150 rural farming households in southwest, Nigeria during the rainy and dry seasons. This was done to allow for seasonal variations in farmers' income and consumption. Data collected were analysed using descriptive statistics, FGT poverty measures, Gini coefficients and Tobit regression. The study finds that farmers' income level was higher during the rainy than dry season, while income inequality was higher during dry season compares with rainy season. Poverty incidence was higher during the dry season than rainy season. Furthermore, farm size, years of education and access to loan facilities negatively influence poverty, while, household size positively affect poverty during the two seasons. This study recommends improvement in the level of educational attainment, access to loan facilities and awareness on benefits of small family size.

**Key words:** Farming households, Income inequality, Poverty, Rainy and Dry seasons, rural Nigeria

### INTRODUCTION

Income inequality and Poverty are problems affecting every nation of the world and they are parts of the greatest challenges facing mankind today. According to World Bank (2001), out of about world's 6 billion people; 2.8 billion lived on less than US\$2 a day and 1.2 billion on less than US\$1 a day. Of the latter, 24.3 per cent were in sub-Saharan Africa (SSA) increasing to 28.3 per cent in 2010. It was estimated that 1.4 billion people had consumption levels below \$1.25 a day in 2010, while SSA of which Nigeria is one, accounted for 388 million of this number (Global Monitoring Report, 2012). While virtually all other regions of the world have been able to achieve the MDG1 of halving poverty by 2015, South Asia met the target up to about 25% and SSA failed to meet the target (World Bank Group, 2015). United Nations (2005) reveals that five years after the millennium summit where the objectives of the MDGs were reached, the condition of the poor has not improved significantly.

One important consensus in the literature on poverty is that it is a rural phenomenon (World Bank, 1990 and Fields, 2000). Rural poverty accounts for nearly 63 per cent of poverty worldwide, reaching 90 per cent in countries like China and Bangladesh and ranges from 65 to 90 per cent in SSA (World Bank, 2000). By this, it is acknowledged that rural communities are the worst hit by poverty where social services and infrastructure are limited or non-existent.

The great majority of those who live in rural areas in Nigeria are poor and depend on agricultural production and allied activities for food and income (Omonona, 2009). The current official statistics released by National Bureau of Statistics (NBS) shows that the national poverty rate is 69 per cent,

while sectoral disaggregation shows urban poverty rate of 61.8 per cent and rural poverty rate of 73.2 per cent (NBS, 2012). Incidentally, the rural sector is the predominant sector in the Nigerian economy (63 per cent). It plays some fundamental roles, which include job creation at relatively low unit costs, and thus remains the most important sector with which to grow the nation's economy.

Evidence abound that among the rural poor, the farming households are poorer. For instance, Federal Office of Statistics (FOS) (1999) and Olaniyan and Bankole (2005) reveal that in 1980, 1985, 1992, 1996 and 2004, the incidence of poverty were 32.1, 43.1, 38.7, 72.3 and 64.4 per cent respectively for Nigerian farming households and 16.3, 37.2, 36.0, 59.2 and 59.2 per cent for their non-farming counterparts respectively. This indicates that in the years under review, there are more poor families in farming households than in non-farming households. Hence, most of the poverty discussions in Nigeria are linked with agriculture (Canagarajah and Thomas, 1995; World Bank, 1996; Okumadewa, 1997; Omonona, 2001; Amao *et al*, 2009). This is because it is still the dominant economic activity in terms of employment and linkages with the rest of the economy (Nigerian National Planning Commission, 2004). While accounting for one-third of the GDP, it remains the leading employment sector of the vast majority of the Nigerian population as it employs two-thirds of the labour force (Chigbu, 2005). Also, about 90% of the country's food is produced by small-scale farmers cultivating tiny plots of land who depend on rainfall rather than irrigation systems (International Fund for Agricultural Development (IFAD), 2007).

However, these farmers, due to low productivity as a result of inadequate access to credit and

marketing facilities are said to be poor. They are also said to be poorer during the dry season than during the rainy season (Adeyonu *et al.*, 2012). This is because in spite of the presence of two major rivers - the Niger and the Benue, agricultural production is still predominantly rain-fed (Nigerian National Planning Commission, 2004). In the life of the farming households, this period is characterized by hunger and malnutrition, leading to sickness, inability to do hard work on regular basis and absenteeism from work which have negative impact on their quality of life as well as their productivity.

Similarly, the rapid economic growth that occurred between 1965 and 1974 created a serious income disparity in Nigeria, which is believed to have widened substantially (Aigbokhan, 1997; Ipinnaiye, 2001; Oyekale *et al.*, 2006). In addition, levels of inequalities have been aggravated in Nigeria as a result of the new causes associated with technology changes, lack of good governance, corruption, weak democratic institutions and past military rule which did not allow free discussion of issues or formulation of truly representative governance organs in the society (Aigbokhan, 1997; 2000). Research efforts have confirmed that income inequality is still on the increase in Nigeria. There are enough evidences to show this. For instance, Canagarajah *et al.* (1997) reported increased income inequality over the period spanning 1985 and 1992. This was established by an increase in the Gini coefficient from 0.381 in 1985 to 0.449 in 1992. In 1996/97 Gini index for Nigeria was 0.506, while it was 0.613 in 1998 (World Bank, 2003), however, using 2004 household data, Gini coefficient reduced to 0.58 (Oyekale *et al.*, 2006). In contrary, comparing 2004 household data with 2010, Gini coefficient increased by 4.1% was also established that Gini index is higher in the rural areas than urban areas. In 1998, Gini index was 0.4799 in rural areas while it was 0.4132 in urban areas. In the same vein, in 2004 the Gini index of rural areas was 0.5808 while in the urban areas it was 0.5278 (Oyekale *et al.*, 2006).

The problem of income inequality and poverty has for a long time been a cause of concern to the Nigerian government. Initial attention focused on rural development in addition to town and country planning as a practical means of dealing with the problem. Thus, the second and fourth National Development Plans contain both direct and indirect allusions to, as well as objectives of policies and programmes aimed at minimizing the causes of poverty (Obi, 2007).

Some of the policies and programmes that have been designed at one time or another, if not to meet the special needs of the poor, at least to reach them included: the establishment of the National

Accelerated Food Production Project (NAFPP), Green Revolution, Agricultural Development Programme (ADP), National Directorate of Employment (NDE), People's Bank, Community Bank and Small-scale Industries Credit Scheme, the Family Support Programme (FSP), Presidential Initiatives on cocoa, cassava, rice, livestock, fisheries and vegetables, the National Land Agricultural Development Agency (NALDA), Directorate of Food, Roads, and Rural Infrastructure (DFRRI), Family Economic Advancement Programme (FEAP), National Poverty Eradication Programme (NAPEP), National Economic Empowerment and Development Scheme (NEEDS) and its counterparts at the state and Local Government levels. The procurement of 12 billion Naira worth of fertilizer between 2000 and 2003 at 25 per cent subsidy to farmers was especially targeted at reducing poverty amongst the farming households. In 2005, the sum of N50 billion was set aside as credit to farmers at a concessionary interest rate of eight per cent (Nuhu, 2007; Federal Ministry of Agriculture and Water Resources 2008).

Recently there has been a reorientation of the government's focus towards developing Community-based Poverty Reduction using Community Driven Development approach. In Nigeria, under this approach several programmes have been implemented and some are still on. Local Empowerment and Environmental Management Programme (LEEMP); Community-Based Poverty Reduction Project (CPRP) and Community and Social Development Project (CSDP) are social CDD projects while National *Fadama* Development Project (*Fadama* - II and III) is economic CDD project.

However, the fact that the incidence of poverty still remains very high, the existence of the various poverty alleviation programmes notwithstanding points to the ineffectiveness of the strategies and programmes (Osinubi and Gafaar, 2005).

Several studies such as: Omonona (2001), Oyekale *et al.* (2006), Son (2007); Ibrahim and Umar (2007), Omonona *et al.* (2008), El-Osta and Morechart (2008), Amao *et al.* (2009) and Idowu *et al.* (2011), Adeyonu *et al.* (2012), Igbalajobi *et al.* (2013), Mailumo *et al.* (2015), Omotola & Salman (2015) have worked on income inequality and poverty, the issue of seasonality has not been properly addressed. Arising from the foregoing, this study has the following research questions: What is the level of income of farming households? What is the level of income inequality and poverty status of farming households? and finally what are the determinants of farming households' poverty during rainy and dry seasons?

The specific objectives are to:

1. examine the income level of the farmers during rainy and dry seasons;
2. assess the income inequality and poverty status of the farmers in rural areas of southwest and
3. analyse the determinants of Farming households' poverty during rainy and dry seasons

## METHODOLOGY

**Study area:** The study was carried out in southwest geopolitical zone in Nigeria. It falls on longitude 6° to the north and latitude 4° to the south. It is marked by longitude 4° to the West and 6° to the East. It is bounded in the north by Kogi and Kwara states, in the east by Edo and Delta States, in the south by Atlantic Ocean and in the west by Republic of Benin. It has a land area of approximately 114,271 km<sup>2</sup> occupying approximately 12 per cent of Nigeria's total land mass. The vegetation is typically rainforest and comprises six states namely: Ekiti, Lagos, Ogun, Ondo, Osun and Oyo states. The total population is 27,581,992 and more than 96 per cent of the inhabitants are Yoruba whose main means of livelihood is farming (National Population Commission (NPC), 2006). The Climate is equatorial with distinct wet (rainy) and dry seasons and relatively high humidity. The dry season lasts from November to March while the wet season starts from April and ends in October. The mean annual rainfall is 1480mm with a mean monthly temperature range of 18°-24° C during the rainy season and 30°-35° C during the dry season. The climate in the zone favours the cultivation of crops like maize, yam, cassava, millet, rice, plantains, cocoa, kolanut, coffee, palm produce, cashew etc (NPC, 2006). Southwestern zone of the country was purposively selected for the study. The selection of the zone was based on the fact that it had the highest incidence of poverty in 2004 when compared with the other two zones in the southern part of the country. The poverty incidence in the zone was 43.0%, followed by south-south 35.1% and south-east 26.7% (NBS, 2005).

**Sources of data and sampling techniques:** Primary data were used for the study. They were collected from the household heads through the use of pre-tested, well-structured questionnaire during the rainy and dry seasons to allow for seasonal variations. Information was collected on household demographic/socioeconomic characteristics and expenditure. A multistage sampling technique was employed for the study. The first stage is the purposive selection of southwest, Nigeria from the three zones that formed the southern divide when the country is stratified into northern and southern divides. The second stage involved the random selection of Osun and Oyo states. The stage that follows was the stratification of Local Government

Areas (LGAs) of each State into urban and rural areas as indicated by the Ministry of local government and chieftancy offices of both States. Osun State has 30 LGAs out of which 19 are rural, while Oyo has 33 LGAs and 21 of them are rural. The next stage was the random selection of two rural LGAs from each of the two states. The list of farming households from the LGAs selected was obtained from states' Agricultural Development Projects (ADPs). The fifth and final stage was the random selection of representative farming households using proportionate sampling method based on the population size of the LGAs selected. In all, 80 households were sampled in Osun state, while 120 households were sampled in Oyo state. However, only a total of 150 questionnaires were used for the analysis due basically to incompleteness of 50 household questionnaires from the two states.

## Analytical techniques

**Descriptive statistics:** Sources and level of income of households and their socioeconomic characteristics were analysed using descriptive statistics: frequency distribution and percentages. Per capita household consumption expenditure was used as a proxy for per capita household income in this study. This is to overcome the problem of overstating or understating household income.

$$\text{Annual per capita Expenditure} = \frac{\text{Annual expenditure of households}}{\text{Household size}} \quad (1)$$

**Measurement of income inequality:** Income inequality of households was achieved by using Gini Coefficient. To calculate Gini-coefficient, Morduch and Sicular (2002) noted that where incomes are considered so that  $Y_1 \leq Y_2 \leq Y_3 \leq \dots \leq Y_n$ .

The Gini coefficient is given by:

$$I_{Gini}(Y) = \sum_{i=1}^n a_i(Y) Y_i \quad \text{and} \quad a_i(Y) = \frac{2}{n^2 \mu} \left( i - \frac{n+1}{2} \right)$$

therefore

$$I_{Gini}(Y) = \frac{2}{n^2 \mu} \sum_{i=1}^n \left( i - \frac{n+1}{2} \right) Y_i \quad (2)$$

Where,

- n = the number of observations
- μ = the mean of the distribution
- Y<sub>i</sub> = the income of the ith household
- a<sub>i</sub>(Y<sub>i</sub>) = the weight
- i = the corresponding rank of total income.

**Measurement of Poverty:** Poverty status of households was achieved by using the Foster- Greer- Thorbecke (1984) class of poverty measures (FGT) including the Headcount Index (P<sub>0</sub>), the Poverty Gap

Index ( $P_1$ ), and the severity of Poverty Index ( $P_2$ ). The FGT is presented below:

$$P_\alpha = \frac{1}{n} \sum_{i=1}^q \left[ \frac{Z-y}{Z} \right]^\alpha \quad (3)$$

Where,

Z = the poverty line defined as  $\frac{2}{3}$  of Mean annual per capita expenditure

y = the annual per capita expenditure –poverty indicator/welfare index per capita

q = the number of poor households in the population of size n,

$\alpha$  = the degree of poverty aversion;  $\alpha = 0$ ; is the Headcount index ( $P_0$ ) measuring the incidence of poverty (proportion of the total population of a given group that is poor, based on poverty line).  $\alpha = 1$ ; is the poverty gap index measuring the depth of poverty that is on average how far the poor is from the poverty line;  $\alpha = 2$ ; is the squared poverty gap measuring the severity of poverty among households, that is the depth of poverty and inequality among the poor.

### Determinants of Poverty

Various approaches have been designed in modelling the determinants of poverty. Some of the models used include the Ordinary Least Square (OLS) (Ravallion, 1996; Omonona, 2009), and the limited dependent variable models (logit, probit and Tobit) that are popular in the literature. While the OLS assume a continuous dependent variable, in the case of poverty, the response is a binomial process taking the values of 1 for poor and 0 for non-poor or vice versa, hence, the popularity of logit, probit and Tobit models in poverty analysis. The Tobit model is used when the intention is to differentiate between the extent of poverty among the poor (Omonona, 2001, Adejobi, 2004, Amaza *et al*, 2007, Balogun, 2011). It measures the effects of changes in explanatory variables on the probability of being poor. Here, the poor farming households have their poverty depth as their dependent variable while the non-poor ones have zero as their dependent variable.

Whereas, logit and probit models are used to examine the influence of the explanatory variables on the poverty status of the households. Here, the poor households are given a value 1, and non-poor ones with a value of zero for the dependent variable. According to Park (2010), the two models give qualitatively similar results, but the core difference lies in the distribution of error terms (disturbances); hence, there is no compelling reason to choose one over the other (Gujarati, 2004). Therefore, Tobit regression analysis was used to determine the factors affecting poverty among farming households in southwest, Nigeria. The model developed by Tobin

(1958) is expressed below following McDonald and Moffit (1980), and adopted by Omonona (2001), Adejobi (2004), Amaza *et al*, (2007), Balogun (2011).

$$q_i = p_i = \beta^T X_i + e_i \quad (4)$$

$$q_i = p_1 \text{ if } p_1 > p_i^*$$

$$q_i = 0 \text{ if } p_1 \leq p_i^*$$

$$i = 1, 2, 3 \dots n$$

Where  $q_i$  is the dependent variable. It is discrete when the households are not poor and continuous when they are poor.  $P_1$  is the poverty depth/intensity defined as  $(Z-y_i)/Z$ , Z is the poverty line, and  $y_i$  is per capita household expenditure in Naira (N),  $X_i$  is vector of explanatory variables,  $\beta^T$  is a vector of parameters and  $e_i$  is the error term.

The explanatory variables include:

$X_1$  = Age of the household head in years

$X_2$  = Gender of the household head (Male=1, otherwise = 0)

$X_3$  = Years of education of household head

$X_4$  = Household size

$X_5$  = Access to loan ( Yes=1, otherwise = 0)

$X_6$  = Market distance in kilometres

$X_7$  = Water distance in kilometres

$X_8$  = Hired labour in man days

$X_9$  = Farm size in hectares

However, since in the standard Tobit model, the estimated coefficients have no natural interpretation, we report marginal effects evaluated at sample means by taking the partial derivatives of equation 4 above with respect to each explanatory variable.

## RESULTS AND DISCUSSION

### Households' income during the rainy and dry seasons

Table 1 presents the level of respondents' income during the dry and rainy seasons. As shown in the table, the mean income of respondents during dry and rainy seasons was N5417.35 and N6080.91 respectively. This shows that the mean income decreased during dry season. This may be due to the fact that agricultural activities were greatly reduced during the dry season. When disaggregated by year of education, the result revealed that income increases as year of education increases in both seasons. This could be because the educated farmers are good adopters of new technologies. This in turn led to increased yield, and hence more income. This is in consonance with findings by Adepoju *et al* (2011) who showed that income level of rural households increases with increase in education. The result also shows that as farm size cultivated increases, mean income increases with that of rainy season higher

than that of dry season. This also implies that scale of production affects the mean income of farmers.

**Table 1: Level of income by year of education and farm size during the rainy and dry seasons**

Characteristics	Statistics	Rainy season	Dry season
All		6080.91 (1902.22)	5417.35 (1949.07)
Year of Education	0-5	4925.77 (1456.22)	4254.68 (1401.53)
	6-11	6519.01 (1399.15)	5759.59 (1420.08)
	12-17	7380.76 (1706.58)	6840.29 (1924.81)
	≥18	8971.41 (1846.88)	8633.06 (1674.03)
Farm size	<2	5752.21 (1945.28)	5128.94 (2035.11)
	2-4	6399.66 (1320.19)	5619.10 (1353.97)
	>4	6585.18 (3476.02)	6299.09 (3392.87)

Note: The figures in parenthesis are standard deviation

Source: Data Analysis, 2014

**Income inequality during the rainy and dry seasons**

Table 2 presents income inequality of respondents by year of education and farm size during the rainy and dry seasons. The results show that income inequality of respondents in the rainy season was 0.1710 and in the dry season increased to 0.1952. The table also reveals that as year of education increases, income inequality decreases in both seasons but income inequality among the respondents during dry season was more than that of the rainy season. In the same vein, as farm size increases, income inequality decreases. This implies that farmers with small scale of production tend to have low income compared with their counterparts cultivating large farm size. The result is in line with Oyekale *et al.*, (2004) and Awoniyi (2011).

**Table 2: Income inequality by year of education and farm size during the dry and rainy seasons**

Characteristics	Statistics	Rainy season	Dry season
All		0.1710	0.1952
Year of Education	0-5	0.6090	0.1954
	6-11	0.1162	0.1483
	12-17	0.1150	0.1342
	≥18	0.1084	0.1069
Farm size	<2	0.2738	0.2778
	2-4	0.1827	0.2069
	>4	0.1053	0.1302

Source: Data Analysis, 2014

**Household poverty level**

Poverty lines were computed for respondents using the two-thirds of mean per capita household expenditure in the rainy and dry seasons. The poverty lines are N4053.91 and N3611.56 per month in the rainy and dry seasons respectively. The poverty situation among the respondents is presented in Table 3. Based on the analysis, 33.3% of respondents live below the poverty line (poor) in the rainy season while in the dry season, it increased to 40.7%. This shows that during the dry season, the farmers tend to be poorer. This may be due to the fact that agricultural production in the study area is rain-fed. This concurs with the findings of Adeyonu *et al* (2012) who reported that poverty indices were higher during dry season than rainy season among rural farming households in Oyo state.

Also implicit in this finding is that as year of education increases, poverty reduces in both seasons. Although it reduces in both seasons as educational attainment advanced, that of rainy season reduces more than that of dry season. This again implies that years spent in acquiring formal education affects poverty. In similar vein, as farm size increases, poverty decreases. This is an implication that farmers with small scale of production tend to be poorer when compared with their counterparts that cultivate large farm sizes.

**Table 3: Poverty profile by year of education and farm size during the rainy and dry seasons**

Characteristics Variable	Statistics	Rainy season			Dry season		
		P0	P1	P2	P0	P1	P2
All		0.3333	0.0168	0.0001	0.4067	0.06021	0.0094
Years of formal education	0-5	0.7218	0.0314	0.0023	0.6090	0.0290	0.0025
	6-11	0.2000	0.0082	0.0008	0.1333	0.0072	0.0007
	12-17	0.1111	0.0062	0.0005	0.0667	0.0011	0.0000
	> 18	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Farm size	<2	0.5455	0.0155	0.0017	0.5455	0.0097	0.0009
	2-4	0.5324	0.0172	0.0008	0.4156	0.0172	0.0008

Characteristics Variable	Statistics	Rainy season			Dry season		
		P0	P1	P2	P0	P1	P2
	>4	0.2258	0.0345	0.0028	0.1774	0.0570	0.0079

Source: Data Analysis, 2014

### Determinants of poverty in the study area

Table 4 shows the factors associated with households' poverty level in the two seasons. The factors are the same in both seasons which include farm size, access to loan facilities, household size and years of education. Farm size, years of education and access to loan facilities negatively influenced poverty level of the respondents while only household size positively affected poverty status of the respondents in the study area. The magnitude was higher during raining season when compared to dry season. This is in agreement with findings by Balogun (2011) who revealed that negative association exists between farm size, years of education and access to loan facilities among rural households in southwestern, Nigeria.

Table 4 further shows that household size is positively and significantly related to poverty. The result reveals that a unit increase in household size increases the probability of being poor by 3.5% and 0.32% during rainy and dry seasons respectively. This is attributable to the fact that with increase in household size, the per capita expenditure is reduced which then leads to reduction in welfare level. This result supports literature that large household is associated with poverty (Gang *et al.*, 2004; Anyanwu, 2005; Omonona *et al.*, 2008 and Balogun, 2011). It was also found that education is significantly

correlated to poverty during dry and rainy seasons. This is so because the highly educated ones are better able to adopt new improved agricultural technologies to raise productivity and income than the uneducated ones. Also, education helps in controlling the rate of child birth and prevent under age marriage; hence reducing the child dependency ratio in such educated farming households. The result is in consonance with Palmer-Jones and Sen (2003), although contrary to the findings of Sadeghi *et al.* (2001) and Anyanwu (2005) that higher levels of education were not seriously needed in rural areas where a few well educated people live.

The result also shows that farm size matters in determining poverty among farming households during both seasons. This implies that an increase in the farm size of the household head decreases probability of farming household's going into poverty by 9.5% and 4.14% during rainy and dry seasons respectively. The implication is that poverty decreases as production scale increases which invariably will increase output and enhance income of the farmers. The lower value obtained during the dry season compared with rainy season could be a testimony to the fact that agricultural production in southwest Nigeria is rain-fed.

**Table 4: Determinants of Poverty Level During the Rainy and Dry Seasons**

Variables	Rainy season			Dry season		
	Marginal effects	Standard error	Z	Marginal effects	Standard error	Z
Age	0.00237	0.00222	1.07	0.00022	0.00127	0.17
Gender	0.02944	0.01795	1.64	0.01727	0.02762	0.63
Years of education	-0.03511	0.00567	-6.20***	-0.01789	0.00325	-5.51***
Household size	0.14975	0.01701	8.81***	0.06454	0.00974	6.62***
Loan	-8.28e-06	0.00000	-2.08**	-4.40e-06	0.00000	-1.92*
Market distance	0.00658	0.01099	0.60	0.00959	0.00630	1.52
Water distance	0.02944	0.01795	1.64	0.01345	0.01026	1.31
Hired labour	-0.00002	0.00004	-0.71	-0.00002	0.00002	-1.05
Farm size	-0.09576	0.02835	-3.38***	-0.04143	0.01625	-2.55**
Constant	-0.70389	0.08974	-7.84***	-0.48033	0.05077	-9.46***
R <sup>2</sup>	0.5890			0.6059		

Note: Marginal effects (rather than coefficients) are shown in the table. The marginal effect is computed at the mean of regressors, for dummy variables it is given for a discrete change from 0 to 1. The dependent variable is the poverty gap. \*\*\* Significant at 1%, \*\* at 5% and \* at 10%

Source: Data analysis, 2014

## CONCLUSION

The findings of this study indicated that high level of education and large farm size as well as access to loan helps to raise the farmers' income thereby increasing their probability of escaping poverty. These support the fact that improvement in education and farm size with loan accessibility can contribute to raising the income of farming households and alleviate poverty in the study area. The policy implication is that farmers' income can be greatly increased through education, access to loan and direct increment of cultivated farm lands. Intensification of efforts on adult education programme most especially in the rural areas and provision of credit facilities for farm land expansion will go a long way in ameliorating poverty among farming households in the rural area. Also, awareness campaign about the benefits of small family size among the rural folks will contribute immensely to reducing poverty rate.

## REFERENCES

- Adejobi, A. O. (2004). Rural poverty, food production and demand in Kebbi state, Nigeria. Unpublished Ph.D thesis, Department of Agricultural Economics, University of Ibadan.
- Adepoju, A.O., Yusuf, S. A., Omonona, B.T and Okunmadewa, Y. F. (2011). Vulnerability Profile of Rural Households in South West Nigeria. *Journal of Agricultural Science*, 3:1.1-12.
- Adeyonu, A.G., Oni, O.A., Okoruwa, V.O., & Omonona, B.T. (2012). Seasonality in Poverty level of Rural Farming Households in Oyo State Nigeria. *ARPJN Journal of Agricultural and Biological Science*. 7.8: 570-575.
- Aighokhan, B. E. (1997). Poverty Alleviation in Nigeria: Some Macro economic issues. NES Annual Conference Proceedings. Pp181-209.
- ..... (2000). Poverty growth and inequality in Nigeria: A case study. AERC research paper 102, Nairobi.
- Amao, J. O., Awoyemi, T. T., Omonona, B. T. & Falusi, A.O. (2009). Determinants of Poverty among Fish Farming Households in Osun State, Nigeria. *International Journal of Agricultural Economics and Rural Development*. 2.2:14-25.
- Amaza PS, Olayemi AO, Adejobi Y, Iheanacho I (2007). Baseline socioeconomic survey report: Agriculture in Borno state, Nigeria. International Institute of tropical Agriculture, Ibadan, Nigeria.
- Anyanwu J.C. (2005). Rural Poverty in Nigeria: Profile, Determinants and Exit Path. *African Development Review*, 17:3.435-460.
- Awoniyi, O.A., Omonona B.T and Falusi A.O (2011). Determinant of Educational Inequality among Rural Households in Nigeria. *Report and Opinion*. 3.12: 1-7.
- Balogun, OL (2011). Influence of social capital and microcredit on rural household poverty in southwestern Nigeria. Unpublished Ph.D thesis in the Department of Agricultural Economics, University of Ibadan, Ibadan. 170pp.
- Canagarajan, Sudharshan; Ngwafon, John; Thomas, Saji. 1997. The evolution of poverty and welfare in Nigeria, 1985-92. Policy, Research working paper ; no. WPS 1715. Washington, DC: World Bank. 100pp. URL <http://documents.worldbank.org/curated/en/1997/01/695029/evolution-poverty-welfare-nigeria-1985-92>
- Chigbu, U.E (2005). Agriculture as the only saviour to Nigeria dyeing economy. retrieved on 08/05 2013 from URL <http://www.nigerianvillagesquare.com>
- El-Osta, H.S. & Morehart, M.J. (2008). Determinants of Poverty among U.S. Farm Households. *Journal of Agricultural and Applied Economics* 40.1: 1-20.
- Federal Ministry of Agriculture and Water Resources (2008). Draft on National Food Security Programme.
- Federal Office of Statistics (FOS). (1999) Poverty and agricultural sector in Nigeria. Lagos.
- Fields GS (2000). The dynamics of poverty, inequality, and economic well-being: African economic growth in comparative perspective. *Journal of African Economies*. 9: 45-78.
- Foster J. E., Greer J, & Thorbecke E (1984). A class of decomposable poverty indices *Econometrical*, 5:761-766.
- Global Monitoring Report (2012). Food prices, nutrition and the millennium development goals <http://go.worldbank.org>. Accessed on 05/04/2013
- Gang I.N., Sen K, Yun MS (2004). Caste, Ethnicity and Poverty in Rural India (see: [www.wm.edu/economics/seminar/paper/gang.pdf](http://www.wm.edu/economics/seminar/paper/gang.pdf))
- Gujarati, D.N. (2004). *Basic Econometrics*, 5<sup>th</sup> ed. New Delhi: Tata McGraw-Hill Publishing Company Limited.
- Ibrahim, H. & Umar, H.S. (2007). Determinants of Poverty among Farming Households in Nasarawa State, Nigeria. *Mass Media and Agricultural Marketing*. 4.1: 11-21.
- Idowu, A.O, Awoyemi, T.T, Omonona, B. T. and Falusi, A. O. (2011). Non-Farm Income Diversification and Poverty among Rural Farm Households in Southwest, Nigeria. *European Journal of Social Sciences*. 21.1: 163-177.
- Igbalajobi, O., A.I. Fatuase, and I. Ajibefun. (2013). Determinants of Poverty Incidence among Rural

- Farmers in Ondo State, Nigeria. *American Journal of Rural Development* 1.5: 131-137.
- International Fund for Agricultural Development (IFAD). (2007). Assessment of rural poverty: Northern and southern Africa. IFAD, Rome, Italy. 171pp.
- Ipinnaye, A. O. (2001). A Decomposition Analysis of The sources of Income Inequality in Ibadan Metropolis. Unpublished B.Sc Project. Dept., of Agric. Economics University of Ibadan.
- Mailumo, S. S., Omolehin, R. and Ajala, M. K. (2015). socioeconomic analysis of poverty among arable crop farmers in Plateau State, Nigeria. *RJOAS*, 5. 41: 1.6.
- Morduch, J. and Sicular T (2002). Rethinking Inequality Decomposition, with Evidence from Rural China. *The Economic Journal*. 112: 93-106.
- Mc Donald J.D, & Moffit R.A (1980). The Uses of Tobit Analysis. *Review of Economics and Statistics*. 62: 318-21.
- National Bureau of Statistics (NBS) (2005). Poverty profile for Nigeria. Abuja
- National Bureau of Statistics (NBS) (2012). Nigeria Poverty Profile. Abuja
- National Population Census (NPC) (2006). National Bureau of Statistics Official Gazette (FGP 71/52007/2,500(OL24) Abuja. URL <http://www.nigerianstat.gov.ng>
- Nigerian National Planning Commission (NNPC) (2004). Meeting everyone's needs-national economic empowerment and development strategy. Nigerian National Planning Commission, Abuja.
- Nuhu, M. B. (2007). Property Development as a Panacea to Poverty Alleviation in Nigeria Strategic Integration of Surveying Services, FIG Working Week Hong Kong SAR, China, pp3-4.
- Obi, O.B. (2007). Fiscal Policy and Poverty Alleviation: Some Policy Options for Nigeria. AERC Research Paper 164, African Economic Research Consortium, Nairobi.
- Ogwumikwe F.O. (2002). An Appraisal of Poverty Reduction Strategies in Nigeria. *CBN Economic & Financial Review* 39 (4).
- Okumadewa, F. Y. (1997). Poverty alleviation in Nigeria: The international dimension. Selected papers from the Nigerian economic society's annual conference.
- Olaniyan, O. and Bankole, A (2005). Human capital, capabilities and poverty in rural Nigeria research report submitted to the African Economic Research Consortium (AERC), for the second phase collaborative poverty research project. Nairobi: African Economic Research Consortium.
- Osinubi, T. S. and Gafaar, O. A. (2005). Macroeconomic Policies and Pro-Poor Growth in Nigeria" A Paper submitted for consideration for presentation at the "Development Economics" Annual Conference of "Verein fur Social politik: Research Committee Development Economics" holding at the Kiel Institute for World Economics, July 8-9, 2005.
- Oyekale, A.S, Adeoti AI, Ogunnupe T.O (2004). Sources of Income Inequality and Poverty in Rural and Urban Nigeria. Paper Presented at the 3<sup>rd</sup> Annual Workshop of Poverty and Economic Policy (PEP) Network Dakar, Senegal (11<sup>th</sup> - 20<sup>th</sup> June 2004).
- [Oyekale A., Adeoti, A. I & Oyekale TO](#) (2006). Measurement and Sources of Income Inequality Among Rural and Urban Households in Nigeria University of Ibadan. *PMMA Working Paper No. 2006-20*.
- Omonona, B. T. Udoh, E. J. & Adeniran, A. A. (2008). Poverty and its determinants among Nigerian Farming Households: Evidence from Akinyele LGA of Oyo State, Nigeria. *European Journal of Social Sciences*. 6.3: 402-413.
- Omonona, B. T. (2001). The Determinant of Poverty among Farming Households in Kogi State, Nigeria. Unpublished Ph. D. Thesis, University of Ibadan, Ibadan.
- ..... (2009). Knowledge review on poverty and rural development in Nigeria. Nigeria Strategy Support Programme NSSP Report. No 003 Pp3.
- Park, H.M (2010). *Regression models for binary dependent variables using stata, SAS, R, LIMDEP, and SPSS*. Working paper. The university information technology services (UITS) Center for statistical and mathematical computing.
- Ravallion M. (1996). Poverty comparisons: A guide to concepts and measures. Living standard measurement paper No.88. Washington, DC. The World Bank.
- Son H.H. (2007). Interrelationship between Growth, Inequality, and Poverty: The Asian Experience. *Asian Development Review* 24.2: 37-48.
- Tobin, J. (1958) Estimation of Relationship for Limited Dependent Variables. *Econometrica* 26: 26-36
- United Nations (2005). The millennium development goals report 2005. United Nations, New York.
- World Bank (1990). World development report. New York: Oxford university press.
- ..... (1996). Nigeria: Poverty in the mist of plenty: The challenge of growth with inclusion. World Bank poverty assessment. Population and

- human resources division report No 14733. Washington DC.
- (2000). World development Report. Washington. D.C.
- (2001).World development Report 2000/2001: Attacking Poverty, New York: Oxford
- university press. World Bank (2003). 2002 Development indicators". Washington D.C: World Bank. Pp 74-75.
- World Bank Group (2015). *Global Monitoring Report 2014/2015: Ending Poverty and Sharing Prosperity*. Washington, DC: World Bank. 244p