

**DETERMINANTS OF RURAL POVERTY AMONG SMALL-HOLDER FARMERS IN AFIKPO-NORTH LOCAL GOVERNMENT AREA OF EBONYI STATE, NIGERIA.**

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**ABSTRACT:**

*In the study, data were collected with a set of structured questionnaire and interview schedule administrated to the respondents. A multi-stage sampling technique was used to select one hundred and twenty small-holder farmers in the study area. Data collected were analyzed using descriptive statistics and inferential statistics. Results of the analysis of the socio-economic characteristics showed that both the married men and women were involved in poverty alleviation in the study area; even though males predominates the females. Most of them were in their economic active ages of between 21-60 years; and also have one form of formal education or the other. Results of the poverty status revealed that any household whose Mean Per Capita Household Consumption Expenditure (MPCHCE) falls below ₦3,333.33 is considered to be poor, while those whose mean per capita household consumption expenditure is equal to or greater than the MPCHCE is considered to be non-poor. The Probit regression analysis results showed that five variables namely; age, household size, farm size, annual income and extension contact had significant influence on the poverty status of the respondents. All the poverty alleviation coping strategies adopted by the respondents in the study area had mean score greater than the threshold of 1.5. Similarly, of the seven Palliative measures adopted by the respondents to reduce poverty in the area, skill acquisition centers helped them to increase their skills and diversify their economic activities. The most serious constraints faced by the respondents include; high cost of fertilizer, scarcity of land, high cost of labor, high illiteracy rate, inadequate storage facilities, etc. The study therefore recommends that since agricultural growth is a key determinant for poverty reduction in Nigeria; the government should come to the aid of these helpless poor farmers in the study area.*

**Keywords:** *Determinants, Rural Poverty, Small-holder farmers, Afikpo North L.G.A, Nigeria.*

**INTRODUCTION**

In Nigeria, agriculture dominates its economy, and it's a known fact that about 70% percent of Nigeria's population are engaged in agriculture (Obasi and Agu, 2000). Again, it is incontrovertible fact that 90 percent of Nigerians are rural dwellers which are small-scale farmers, representing 60 percent of the country's population, and earn their living on farming (Oluwatayo et al, 2008).

However, despite the significant contribution of small-holder farmers to the life of the people, majority of Nigerian small-holder farmers are faced with the problems of poverty, hunger, malnutrition, illiteracy, diseases, life of misery and squalor, low life expectancy, socio-political instability, violence, prostitution, alcoholism, drug addiction, frustration, despair, disillusionment, pessimism, moral decadence, bribery and corruption (Durham et al, 2004). The ultimate goal of agricultural production in Nigeria is to raise the standard of living of its citizens, and thereby enhance equitable distribution of income. Even though it has been reported that there is an existence of high level of income inequality in many low-income countries of sub-Saharan Africa, in which Nigeria is inclusive (World Bank, 2001).

In 2004, Nigeria's relative poverty measurement index stood at 54.4%, but increased to 69% in 2006. The North geo-political zone recorded the lowest poverty rate (59.1%) among the six geo-political zones in Nigeria. It however remains a paradox, despite the fact that the Nigerians living in poverty is increasing every year, although it declined between 1985 and 1992, and 1996 and 2004 (Spencer, 2005).

The poverty situation in Nigeria is quite disturbing, as both the qualitative and quantitative measurements attest to the growing incidence and increasing depth of poverty in the country (Okunmadewa and Yusuf, 2005). However, it is to be noted that poverty is a universal phenomenon that affects the socio-economic and political well-being of the people in developing countries, and it is absolute and more pronounced in the rural areas.

Rural poverty in Nigeria is evenly distributed in specific geographical areas. In Nigeria, rural farmers are challenged with complex, and worsening standard of living which can be traced to a number of factors which include; lack of access to endowment; such as, employment, education, health care facilities, good roads, portable water supply, proper sanitation system, poor infrastructural development, non-access to land and inadequate capital/credit (Otsuka, 2008). Also, included are lack of access to market for goods and services that the rural dwellers produce so as to offer them for sale, inadequate or non-involvement of the rural dwellers in the design of the programs for poverty alleviation; among others. Spatial inequality is the inequality between urban and rural dwellers. However, both rural poverty and spatial inequality are global phenomena, but like the poverty in Nigeria, there are

more of rural poverty in developing countries, than in developed countries (Rosegrant et al, 2001).

Nigeria is currently witnessing an unprecedented increase in poverty incidence and its existence seems to be universally accepted as a situation when one or more persons fail to attain a level of well-being deemed to constitute a reasonable minimum by the standard of the society (Owuor et al, 2007). In more specific terms, poverty can be described as the level of deprivation that encompasses shortfalls and inadequacies in basic human needs which prevent people from achieving internationally acceptable level of well-being (i.e. relative poverty) (Adekoya, 2014). However, at the extreme is "absolute poverty" which reflects the condition of people who live below the poverty line or those that lack income necessary to satisfy the basic food needs, and those affected no longer in a position to live a life worthy of human dignity (Hazoor et al, 2006).

The level of human capital development is so low that the environment takes control of man instead of the reversed situation (Okunmadewa et al, 2005). Poverty is undesirable, and it is an economic and social malaise; a ravaging phenomenon that must be tackled. Although, predicted poverty reduction scenarios vary greatly depending on the rate and nature of poverty related policies, actual evidence suggests that the depth and severity of poverty is still at its worst in Nigeria, Sub-Saharan Africa, and South Asia (Hammer and Nasehold, 2009 and Okunmadewa et al, 2005). However, within these regions, poverty is largely a rural phenomenon with an average of between 62 and 75 percent of the population living on less than a dollar per day (Pinstrup et al, 2001). Hazoor et al, (2006) reported that majority of the rural dwellers are small-holder farmers and the poverty gap is becoming wider over time which calls for a concerted action.

In Nigeria, rural poverty is relatively high. A national poverty survey carried out indicates that the tropical areas have moderate poverty levels, while the Northern regions have as high as 60 percent (Odusola, 1997; Okunmadewa et al, 2005, NBS, 2009). The average national poverty incidence indicates that this situation has not improved during the past two decades in most of sub-Saharan African countries; including Nigeria (World Bank, 2008; Apata et al, 2009). The reason being that despite the high incidence rates in Nigeria (Afikpo North L.G.A of Ebonyi State inclusive), little was documented on policy related determinants of rural poverty; thereby making it very difficult to effectively set and implement sustainable anti-poverty policy programs.

Recently, the United Nations in line with the aspiration of millennium development goals (MDGs) declared the goal of halving the number of poor people by 2015 (World Bank, 2002). Indices such as life expectancy, infant mortality rate and number of persons per physician were introduced by them.

Therefore, the reform measures, including the national economic empowerment and development strategy (NEEDS) introduced by Nigeria were intended to pave way for the improvement in the country's development in line with the aspiration of the Millennium Development Goals (MDGs) (Ojomu, 2004).

Poverty in Nigeria is a rural and regional phenomena. World Bank (1996) reported that in 1992, rural areas (i.e. a largely agrarian economy) accounted for 66% of poverty incidence, 72% of poverty depth and 69% of the extreme poverty. Nigerian rural areas are characterized by inadequate access to agricultural inputs like land, fertilizer, credit facilities, and extension services, and up till now, there has not been any nationwide attempt to econometrically estimate the determinants of poverty in recent times. Various studies have been carried out in the past which include; World Bank, 2008; Onah, 1996; Echebiri, 1997; Ogwumike and Ekpeyong, 1996; Anyanwu, 1997; Odusola, 1997; Englama and Bamidele, 1997); among others; which dealt with the identification and analyzation of the extent of poverty in Nigeria. In some other studies, poverty had been found to be strongly influenced by location (i.e. rural and urban), age, education of the household heads, and size of the household (World Bank, 1996; Okunmadewa, 1997 and NBS, 2009).

In all, none quantified the impact of the factors influencing poverty. In fact, while some African countries have econometrically studied the development of poverty in their respective domain, there has not been any for Nigeria (Reardon and Taylor, 1996 in Burkina Faso; Coulomb and Mekay, 1996 in Mauritania; Owuor et al, 2007 in Kenya; and a host of others), hence this study therefore fills the gap. In view of these, that this study was undertaken to describe the socio-economic characteristics of the small-holder farmers; ascertain the determinants of poverty among the small-holder farmers, examine poverty status among the small-holder farmers; ascertain the various poverty alleviation coping strategies (formal or informal) adopted by the small-holder farmers; identifying ways of reducing poverty among the small-holder farmers whenever there is a shortfall and identify the constraints faced by the small-holder farmers in an effort to alleviate poverty in the study area.

## METHODOLOGY

### Study Area:

Afikpo North Local Government Area lies between latitudes 5°53' and 7°56' North of the equator and longitudes 5°83' and 7°93' East of the Greenwich Meridian. It has a total land area of 164 km<sup>2</sup> and a population of 156,611 people (NPC, 2006). The local government area has basically two distinct seasons, the rainy season which lasts from April to October, and the dry season which lasts from November to March. The temperature ranges

between 30°C to 38°C in the dry season and 16°C to 28°C in the rainy season; with the relative humidity at 83% (Nimet, 2017). Being an agrarian area, the main occupation of the people is farming. The climate is favorable for the growth of yam, rice, cassava, maize, groundnut, cowpea, cucumber, and vegetables. Among the animals reared included goats, sheep, poultry, pigs, ducks, etc.; but all on a small-scale basis. They also engage in artisanal works, hunting, and other petty businesses.

**Sampling procedure;**

Multi-stage sampling technique was used in the collection of data using structured questionnaire. Firstly, six communities were randomly selected out of ten communities that make up the L.G.A. Secondly, four villages were also randomly selected from each of the six communities already selected in stage 1; thereby bringing them to 24 villages. Thirdly, five small-holder farmers were randomly selected from each village already selected in stage 2. This gave a total of one hundred and twenty small-holder arable crop farmers that were used for the study.

**Analytical Techniques:**

Data collected were analyzed using descriptive statistics and relevant inferential statistics in order to achieve the desired objectives.

**Model Specification:**

**Descriptive statistics:**

These were used to analyze the socio-economic data using frequency distribution tables, means and percentages. These tools of analysis were used to analyze objectives: (i), (iv), (v), and (vi); however, objective (iv) in addition, was complimented with 4-point Likert scale analysis.

**Mean score analysis on a 4-point Likert scale**

A four point Likert type of scoring was used in complimenting the strategies for coping with poverty among the respondents. Levels of coping strategies were thus: Frequently used =3, occasionally used = 2; rarely used = 1; and Not used = 0. The Likert scale score is a method of ascribing quantitative values to qualitative perception to make them amenable to statistical analysis. The values of the responses were added up and divided by 4 to obtain a mean score of 1.5(3+2+1+0=(6/4)=1.5), which is regarded here as a mean level of acceptance. The small-holder farmer with the adoption score of 1.5 and above was considered to have accepted the poverty alleviation coping strategies, while those with adoption score of less than 1.5 were regarded as

having rejected the poverty alleviation coping strategies.

The mean acceptance score was determined thus: Mean of each value item was computed by multiplying the frequency of positive response with its appropriate Likert nominal value and the sum was added to the sum of the number of the respondents. Then, from the formula:

$$X = \frac{\sum fx}{N}$$

Where X = Mean Score

∑ = Summation

Fx = Likert nominal Value of responses

N = No of Observations

**Foster Groer – Thorecke (FGFT Model):**

FGT poverty index was used to measure poverty status among the rural farming households (Foster et al, 1994)(revised)

The FGT poverty index is given by:

$$Pa(y,z) = \frac{q}{n} \sum_{i=1}^q \frac{z - yi}{z} \dots\dots\dots \text{equation (i)}$$

Where: n = total number of sample households in the population

q = the number of poor household (those below the poverty line).

z = the poverty line for the household

yi = poor households expenditure

α = poverty aversion parameter and takes on the value of 0,1,2

$\frac{(z - yi)}{z}$  = the proportion of shortfall in expenditure below the poverty line.

Z

**Construction of Poverty Line**

This was done to categorize the respondents into poor and non-poor households using the two-third mean per capita household consumption expenditure (MPCHCE), as the benchmark; which were adopted from the studies carried out by ( Ruben and Van den Berg, 2001; Yunez-Naude and Taylor, 2001; Adewinmi et al, 2011).

Households whose mean per capita household consumption expenditure falls below the poverty line are regarded as being poor; while those with their mean per capita household consumption expenditure above the benchmark are regarded as non-poor. In which case, non-poor households are those whose PCHCE is equal to or greater than two-third mean PCHCE. Those with PCHCE less than two-third Mean PCHCE are said to be poor.

Per Capita Household Consumption Expenditure(PCHCE)

$$= \frac{\text{Annual Household Consumption Expenditure}}{\text{Household Size}}$$

Mean Per Capita Household Consumption Expenditure (MPCHCE)

$$= \frac{\text{Total per Capita Household Consumption Expenditure (MPCHCE)}}{\text{Total Number of Households}}$$

Total Number of Households

Therefore, poverty line (PL)= 2/3 X Mean Total per capita Consumption Expenditure

**Probit Regression Model**

Probit model was employed to ascertain the determinants of poverty status of households in the study area. The Probit model was employed by (Gujarati and Porter, 2009; Adesina et al, 2000; Oluwatayo (2008).

This can be expressed as:

$$Q_{it} = b_{xit} + e_{it} \text{ ..... equation (2)}$$

where:

$Q_{it}$  = an undeserved latent variable for poor households

$X_{it}$  = Vector of explanatory variables

$b$  = Vector of parameter to be estimated

$e_{it}$  = Stochastic error term

The observed binary (1,0) for whether household is poor or otherwise is assumed in the usual probit model. The probability that binary assumes the value 1, implies that:

$$\frac{e^{x_{it} + B_{xit}}}{1 + e^{x_{it} + B_{xit}}} \text{ ..... Equation (3)}$$

$$\text{Prob}(q_{it} = 1) = 1 + e^{-x_{it} - B_{xit}}$$

Thus, in this study, the explanatory variables ( $X_s$ ) to be included in the model are:

- $X_1$  = Age of the respondent (Years)
- $X_2$  = Gender of the respondent (Male=1, Female=0)
- $X_3$  = Marital status of respondent (Married=1, otherwise=0)
- $X_4$  = Household size (Number of persons)
- $X_5$  = Educational level (Years)
- $X_6$  = Farming experience (Years)
- $X_7$  = Farm size (Hectares)
- $X_8$  = Cooperative membership (Member=1, non-member=0)
- $X_9$  = Access to credit (Access=1, non-access =0)
- $X_{10}$  = Annual household income (Naira)
- $X_{11}$  = Frequency of extension contact (Number of times a farmer was visited by extension agent in a year)
- $X_{12}$  = Primary occupation (Agriculture=1, otherwise=0)
- $X_{13}$  = Farm enterprise (categories)

**RESULTS AND DISCUSSION**

**Socio-economic characteristics of respondents**

Analysis of descriptive statistics on the socio-economic variables of the respondent (Table I) revealed that majority (90.83%) of them were within the age bracket of 21-60 years. This implies that they are still in their economic active ages, which could enable them to run away from hunger by being more productive. This result agrees with the findings of Alabi et al (2005) who opined that farmers age has positive influence on maize production in Kaduna state, with younger farmers producing more than the older ones; plausibly because of their flexibility to new ideas and risks. The table also showed that both men and women were actively involved in poverty

alleviation. However with 41.67% being female, while 58.33% of them were male. The study also revealed that 77.5% of the married couples were involved in poverty alleviation in the study area. This portends that the burning desire to drive out hunger from each household is a collective effort. No wonder (Nwaru, 2006) disclosed that married couples who have children are supposed to have them as a source of family labor in alleviating poverty in the household. In addition, the table also showed that 81.67% of the respondents had one form of formal education or the other. (Onyenweaku et al, 2005; and Idiong et al, 2006); had reported that formal education has positive influence on the acquisition of knowledge, as well as an innovation of new ideas which invariably leads to poverty reduction. The table equally revealed that 74.17% of respondents had farm size of between 0.1-3.0 hectares. But for the very few that have farm size of up to 4.0 hectares; means that they have established themselves in the business. However, all these portrayed their small-scale nature. The respondents have household sizes of between 4-20 members, but with a mean of 12 members. However, under the peasant agriculture, much reliance is placed on the strength of the household to supply the much needed farm labor, especially in the absence of mechanical equipment. Thus, the larger the household size, the greater the supply of the family labour which invariably help to reduce poverty by reducing the cost of farm activities.

The result in (Table 2) shows the level of poverty status of the respondents in the study area. In determining the poverty status, a poverty line was constructed. The household per capita expenditure on food and non-food items was used in the classification of households into poor and non-poor through the poverty line. Results show that any household whose mean per capita household consumption expenditure (MPCHCE) falls below ₦3,333.33 is considered to be poor; while those whose mean per capita household consumption expenditure (MPCHCE) is equal to or greater than the MPCHCE is considered to be non-poor.

The poverty status was analyzed using the two indicators prevalence of poverty as poor and non-poor. The results show that majority (60%) of the respondents were still poor with a mean of 0.30; indicating that 60% of these respondents had an average consumption expenditure below the poverty line (₦3,333.33). The gap represents the percentage of expenditure required to bring poor farmers below the poverty line up to the poverty line.

The results also show that 40% of the respondents were non-poor, having a mean of 1.0741 which was above the poverty status of 0.61. This implies that a fair percentage of the respondents had a good distribution of the standard of living indicators; such as health care services, clean water

supply and income generating activities (NBS, 2008).

Okunmadewa (2010) and World Bank (1996) reported that poor families were in a higher proportion in farming households than in non-farming households in Nigeria. World Bank (1996) further identified poverty in rural communities as related to poor physical facilities, food insecurity, obsolete agricultural practices, poor nutritional values, little access to savings and credit, general inability to sponsor higher education of children, inadequate diets and homes without basic amenities (Adebo and Ajiboye, 2014). The study recommends that agricultural growth is therefore a key determinant of poverty reduction in Nigeria.

The empirical results of the probit regression estimates for the determinants of poverty among rural households in Afikpo North of Ebonyi State are shown in (Table 3). The coefficient of age was negative and significant at 5 percent level of probability. This indicates that any increase in age will increase the probability of the households being poor. This is expected; as the younger farmers tend to be more productive and move away from poverty, the likelihood of being poor also decreases. This finding is in consonance with Gang et al (2002), Datta and Jolliffe (1999) and Rodriguez (2002), who opined that poverty increases with old age, as the productivity of individual decreases.

The coefficient of household size was negative and highly significant at 1 percent level of probability. This indicates that any increase in number of household size will increase the number of poor households in the study area. Households with members that do not involve in income generating activities can be a cause to keep them in poverty. The characteristics and composition of a household plays an important role to determine the poverty status of a household. The more the number of adults in the household who are educated, the more the opportunity to generate more income which will be available for consumption and the more the likelihood to escape from poverty (Adekoya, 2014). However, the larger the household size, the poorer the household is likely to be, because more of the household members will likely be children who are unproductive and yet take a big proportion of the household income in terms of school fees, medical bills, food, clothing, etc., following the results of: Okurut et al (2006); Gam et al (2002); Bokosi (2006) and Anyanwu (2010).

The coefficient of farm size was positively signed and significant at 10% level of probability. This implies that any increase in farm size will definitely increase the number of non-poor households in the study area. The possible explanation is that, the more the farmers expand their hectares of production, the more the output; thereby moving away from poverty line. Etim and Udoh (2013) noted that increase in cultivable farmland,

with subsequent increase in output will decrease the poverty status.

The coefficient of income was positive and highly significant at 1 percent of probability. This indicates that any increase in farm income, will increase the number of non-poor households in the study area. As farmers income increase, household tends to increase their consumption and family needs; thus moving away from poverty. Moreover, the contribution of off farm income generating activities to household income increases households' income significantly. This led to the improvement of disposable income and also allocation for food needs as well.

The coefficient of extension contact was positively signed and significant at 10% level of probability. This indicates that any increase in extension contact will lead to a corresponding increase in the number of non-poor households in the study area. Farmer's access to extension services indicate that agricultural technologies and information are properly disseminated to the target audience; thereby increasing productivity which is important in ameliorating rural poverty. Thus, exposure to modern farming techniques and good farm management principles can improve farm productivity and useful in ameliorating rural poverty. The findings of De Janvry and Sudoulet (2000) in Latin America, established that rural property has a strong association with rural development through agricultural production; implying that agricultural potential has a role to play in poverty reduction.

Results in Table 4 revealed thirteen poverty alleviation coping strategies adopted by the small-holder farmers in the study area. These include; Run to relation, eating less preferred food, limiting size of food consumed; skipping meals within a day; material buffering; borrowing money to buy food; borrowing food; collecting food from the wild state; sold assets to buy food; travel in search of food; send out children for paid jobs; withdraw children from school and engage in other lucrative businesses. All these poverty alleviation coping strategies had mean scores greater than the threshold score of 1.5.

Results in table 5 showed seven palliative measures adopted by the small-holder farmers to reduce poverty in the study area. These include; having the basic social amenities which had a frequency of 110; having skill acquisition centers and cottage industries with each having a frequency of 109; having at least basic education which had a frequency of 103; having the basic healthcare facilities with the frequency of 99; living in good houses with the frequency of 92; and lastly living in less than one dollar per day with frequency of 38 and lastly; living in less than one dollar per day. With the frequency of 38. They do all these in order to boost their income and also meet up with other family expenses, and commitments. However, having skill acquisition centres in particular, helped them to

increase their skills and diversify their economic activities. This finding is in line with Okorokwo (1999) who observed that despite the fact that most of the respondents had farming as their primary and pre-dominant occupation, they do also engage in other economic activities.

Results in Table 6 revealed the constraints faced by the small holder farmers in an effort to alleviate poverty in the study area. These include high cost of fertilizer which had 75.83% respondents, scarcity of land with 66.67% respondents; high cost of labour with 64.17% respondents; high illiteracy rate and poaching/settlement within the protected areas and bush fires which attracted 62.5% responses each; inadequate storage facilities attracted 60.83% responses; decline in soil fertility attracted 59.17% responses; inadequate power supply attracted 55.83% responses; unstable government policies attracted 51.67% responses; low productivity attracted 49.17% responses; poor budgetary allocation to agricultural sector attracted 43.33% responses; inadequate capital attracted 42.5% responses; pests and diseases infestation attracted 40.83% responses; poor communication network attracted 39.17% responses; while poor marketing facilities attracted 38.33% responses. Nevertheless, these results are against the finding of Okunye (2001) who reported bad road networks, electricity, pipe borne water, transportation and processing facilities constrained the production and distribution of cucumber in Ivo Local Government Area of Ebonyi State.

### CONCLUSION:

Emerging evidence from the study revealed that both married men and women were involved in poverty alleviation in the study area; even though males predominates the females. Most of them were in their economics active ages of between 21-60 years and have one form of formal education or the other.

Result of the poverty status among the small holder farmers in the area showed that any household whose Mean Per Capita Household Consumption Expenditure (MPCHCE) falls below ₦3,333.33 is considered to be poor; while those whose Mean Per Capita Household Consumption Expenditure (MPCHCE) is equal to or greater than the MPCHCE is considered to be non-poor.

Five variables namely; age, household size, farm size, annual income and extension contact had significant influence on the poverty status of the respondents. However, while farm size, annual income and extension contact had a positive relationship with the poverty status at varied probability levels; age and household size on their part, had a negative relationship with the poverty status at different probability levels too.

All the poverty alleviation coping strategies adopted by the small-holder farmers in the study area had mean score greater than the threshold of 1.5. Of

the seven palliative measures adopted by the small-holder farmers to reduce poverty in the area; skills acquisition centres helped them to increase their skills and diversify their economic activities; even though any of these can help them boost their income and also meet up with other family expenses and commitments. There were many problems faced by the small-holder farmers in an effort to alleviate poverty in the study area. These include, high cost of fertilizers, scarcity of land, high cost of labour, high illiteracy rate, poaching /settlement within the protected areas and bush fires, inadequate storage facilities, decline in soil fertility; among others. The study therefore recommends that since agricultural growth is a key determinant for poverty reduction in Nigeria, the government should come to the aids of these helpless poor farmers in the study area.

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**Table 1: Socio-economic characteristics of Respondents (n=120)**

<b>Age (in years)</b>	<b>Frequency</b>	<b>Percentage (%)</b>
1-20	11	9.17
21-30	28	23.33
31-40	41	34.17
41-50	23	19.16
51-60	17	14.17
<b>Total</b>	<b>120</b>	<b>100</b>
<b>Gender</b>		
Male	70	58.33
Female	50	41.67
Total	120	100
<b>Marital Status</b>		
Single	27	22.50
Married	68	56.67
Widow	20	16.67
Divorced	5	4.17
<b>Total</b>	<b>120</b>	<b>100</b>
<b>Household size(No. of persons)</b>		
1-4	27	22.50
5-8	43	35.83
9-12	19	15.83
13-16	17	14.17
17-20	14	11.67
<b>Total</b>	<b>120</b>	<b>100</b>
<b>Educational level (years)</b>		
No formal education	22	18.33
Primary education	39	32.50
Secondary education	32	26.67
Tertiary education	27	22.50
<b>Total</b>	<b>120</b>	<b>100</b>
<b>Farm size (ha)</b>		
0.1-0.99	26	21.67
1-2	37	30.83
2-3	26	21.67
3-4	31	25.83
<b>Total</b>	<b>120</b>	<b>100</b>

Source: Field survey data, 2018.

**Table 2: Examining The Poverty Status Among The Small-holder Farmers In The Study Area.**

<b>Variables</b>	<b>Frequency</b>	<b>Percentage (%)</b>	<b>Mean</b>
Poor	72	60.	0.3020
Non-poor	48	40.	1.0741
Total	120	100.	0.61

Source: Field survey data, 2018.

**Table 3: Result of Probit regression analysis for determinants of poverty among the small holder farmers in the study area.**

Variables	Parameters	Coefficient	Standard error	T-values
Age	X <sub>1</sub>	-0.0564	0.0183	-3.08**
Gender	X <sub>2</sub>	-0.441	0.0415	-1.06
Marital status	X <sub>3</sub>	0.0235	0.0499	0.47
Household size	X <sub>4</sub>	-0.2753	0.1693	-16.26***
Educational level	X <sub>5</sub>	0.0078	0.0173	0.45
Farming experience	X <sub>6</sub>	-0.0302	0.0216	-1.40
Farm size	X <sub>7</sub>	0.0344	0.0200	1.72*
Cooperative Membership	X <sub>8</sub>	0.458	0.0420	1.09
Access to credit	X <sub>9</sub>	-0.0114	0.0433	-0.26
Annual income	X <sub>10</sub>	0.4084	0.0214	19.09***
Extension contact	X <sub>11</sub>	0.0705	0.0416	1.70*
Primary occupation	X <sub>12</sub>	0.0526	0.0423	1.24
Farm enterprises	X <sub>13</sub>	-0.0627	0.0445	-1.41
Constant	B <sub>0</sub>	0.6256	0.11239	5.05***
Log likelihood		12.7191		
Chi <sup>2</sup>		0.0000		
Pseudo R <sup>2</sup>		51.1217***		

Source: Field survey data, 2018

Note that \*\*\*; \*\*, and \* means significant at 1%, 5% and 10% level of probability respectively.

**Table 4: Various Poverty Alleviation Coping Strategies Adopted by the small-holder farmers in the study Area.**

Poverty Alleviation Copying strategies	Frequently Used(3)	Occasionally Used(2)	Rarely Used (1)	Not Used(0)	Mean Score (X)	Decision Rule
Run to Relations	12	36	27	45	2.71	Accepted
Eating less preferred Food	14	49	22	35	2.35	Accepted
Limiting size of Food consumed	28	38	20	34	2.5	Accepted
Skipping meals Within a day	2	23	16	79	1.56	Accepted
Material buffering Borrowing money	8	31	29	52	1.95	Accepted
To buy food	28	18	3	71	2.02	Accepted
Borrowing food	3	18	18	81	1.52	Accepted
Collecting food from The wild state	10	33	17	60	1.94	Accepted
Sold assets to buy Food	2	23	10	85	1.51	Accepted
Travel in search Of food	14	34	12	60	2.01	Accepted
Send out children For paid jobs	11	26	20	63	1.87	Accepted
Withdraws children From school	2	25	15	75	1.66	Accepted
Engage in other Lucrative small	34	31	8	47	2.43	Accepted

Source: Field Survey data, 2018.

Decision Rule: Accept, if it is 1.5 and above

Reject, if it is less than 1.5.

**Table 5: Ways of Reducing Poverty Among The Small-holder farmers in the study**

<b>Palliative measures</b>	<b>Frequency</b>	<b>Percentage (%)</b>
Are there people in your area living in less than one dollar in a day?		
Do they live in good houses in your area?	38	31.67
Do people in your area have at least basic education?	92	76.67
Do people in your area have the basic health care facilities?	103	85.83
Do people in your area have the basic social amenities?	99	82.50
Do people in your area have skill acquisition centers?	110	91.67
Do people in your area have cottage industries/ mills for Processing your crops?	109	90.83
	109	90.83

Source: Field survey data; 2018

**Table 6: Constraints Faced by the small-holder Farmers in an effort to Alleviate Poverty in study area.**

<b>Constraints</b>	<b>Frequency</b>	<b>Percentage (%)</b>
Acquisition of land	80	66.67
Inadequate Capital	51	42.50
High cost of labor	77	64.17
Inadequate processing facilities	19	15.83
High cost of fertilizer input	91	75.83
Inadequate storage facilities	73	60.83
Pest and disease infestation	49	40.83
Poor market outlet facilities	41	34.17
Unstable government policies	62	51.67
Decline in soil fertility	71	59.17
Poor budgetary allocation to Agricultural sector	52	43.33
Poor communication network	47	39.17
Inadequate power supply	67	55.83
Lack of portable water supply	38	31.67
High illiteracy level	75	62.50
Low productivity	59	49.17
Uncontrolled grazing and livestock Migration in some area	75	62.5
Poaching and settlement within The protected areas and bush fires	75	62.5
Poor and inadequate irrigation facilities	39	32.5

Source: Field survey data, 2018.

**APPENDIX****Calculation of the poverty line****Poverty line (pl)** =  $\frac{2}{3} \times \text{MPCHCE}$ Total Households Monthly Consumption Expenditure  
= ~~₦~~450,000.

Household size = 9 persons / household

Therefore; PCHCE =  $\frac{\text{₦}450,000}{9}$ = ~~₦~~50,000.

Total Per Capita Household Consumption Expenditure for the year

= PCHCE X 12

= ~~₦~~ 50,000 X 12 → ~~₦~~ 600,000.

Monthly Per Capita Household Consumption Expenditure (MPCHCE)

=  $\frac{\text{TPCHCE}}{\text{Total number of Households}}$ 

MPCHCE =

=  $\frac{\text{₦ } 600,000}{120}$  = ~~₦~~5,000

120

Therefore, Poverty Line (PL) =  $\frac{2}{3} \times \text{₦ } 5,000$ → ~~₦~~3,333.33