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Determinants of Poverty Among Rural Farming Households in Ganye Local Government Area of Adamawa State, Nigeria

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Abstract

Poverty is one of the difficult problems that affect rural farming households in Nigeria because farming is their primary source of income. In Ganye Local Government Area of Adamawa State, Nigeria, the study examined the causes of poverty among rural agricultural households. The particular research objectives were to define the socioeconomic characteristics of the respondents, determine their level of poverty, and investigate the reasons that cause poverty among the respondents. The primary data for the investigations came from 250 respondents who were selected using a multi-stage random selection technique. The analytical techniques used were descriptive analysis, Foster-Greer-Thorbeeke (FGT) and Logit regression model. The study's findings revealed that the majority of rural farming households' heads were men (84.40%), married (85.60%), with a mean age of 41.25 years, educated (84.00%), and with a mean farm size of 2.56 ha and a mean household size of 7 individuals. However, the majority of responders (87.60%) lacked access to credit. The distribution of respondents by level of poverty (P_o, P_1, and P_2) according to the study's findings was also discovered to be 0.60 for incidence, 0.31 for depth, and 0.19 for severity. The Logit regression model's findings demonstrated that while age, marital status, and household size had adverse effects on poverty status among farming households and were statistically significant at different levels, sex, formal education, primary occupation, access to credit, total income, and annual remittances had favorable effects. The study's conclusions recommended that rural farming households have access to centers for skill development, that adequate financing be provided for the development of infrastructure, and that credit facilities be accessible. These suggestions would contribute to reducing poverty.

Key Words: *Determinants, Poverty status, Rural farming household, Logit regression model and Adamawa State*

Introduction

Poverty is widely recognized as a significant indicator of underdevelopment, with its reduction often equated with progress in development or economic advancement. It is a social state characterized by inadequate access to necessities of life (food and non-food) to maintain a minimal level of living that is socially acceptable in a particular society. Ample food, a place to live, access to potable water, health care, education, and employment opportunities are a few of these fundamental well-being determinants. Since most of these facilities are essentially controlled by the market, who possesses what always depends on an individual's income or other disposable resources that are available to households or individuals (Mansi et al., 2020, Henry et al., 2023).. According to Ike and Uzokwe (2015), poverty is defined as a household or individual not having enough income to meet these demands at the bare minimum levels in the society in question. It goes without saying that poverty is a global issue, yet the threat of poverty is most destructive in the developing world. Particularly over the past ten years, the majority of developing countries' human conditions have drastically worsened, real disposable income has significantly decreased, and rates of hunger have increased. The quantity and quality of health have drastically declined, and food production has barely kept up with population growth (Waseem et al. 2020). The extent of poverty among farmworkers and farmers is influenced by the larger society in which they reside. Low levels of assets combined with poor returns lead to poverty. Only their own labor, which is invariably used in laborious, physically taxing, low-paying employment, makes up the majority of the poor's possessions. Poverty perpetuates itself. There is a great likelihood that a poor person or family will remain poor. High disease risks, mobility restrictions, and restricted access to education are all associated with low earnings (Adekoya, 2014).

According to Hagan (2018), poverty results from a lack of assets and low returns. Only their own labor, which is invariably used in laborious, physically taxing, low-paying employment, makes up the majority of the poor's possessions. Poverty perpetuates itself. There is a great likelihood that a poor person or family will remain poor. High disease risks, mobility restrictions, and restricted access to education are all associated with low incomes. When one or more people fall short of the standard of living that is considered to be a fair minimum in terms of economic welfare, whether in an absolute sense or by the standards of a particular society, they are said to be living in poverty (Jude et al., 2020). The prevalence of poverty is rising, along with its consequences for the country as a whole and the rural population in particular. One in five people on the planet are said to be living in abject

poverty. According to Mood and Jonsson (2016), poverty is the inability to effectively meet needs for things like food, shelter, clothes, and Medicare. It is also a condition in which a person, family, community, or country may find themselves lacking in basic necessities. It is a widely multifaceted, partially subjective phenomenon that is frequently seen as both the root of underdevelopment and one of its symptoms. It takes various forms, one of which is the inability of an individual or group to contribute to and thrive in society.

As of 2022, a staggering 712 million people worldwide were living in extreme poverty (defined as less than $2.15 per day, based on the international poverty line). According to the World Bank (2024), extreme poverty continues to be concentrated in regions of Sub-Saharan Africa, areas affected by conflict and fragility, and rural settings. The report emphasizes that addressing poverty comprehensively necessitates addressing its multifaceted dimensions. Furthermore, it highlights that countries cannot effectively combat poverty without simultaneously enhancing the overall well-being of their populations, including through equitable access to healthcare, education, basic infrastructure, and services, as well as digital technologies. Rural poverty is a significant issue globally, with nearly 63 percent of poverty concentrated in rural areas (UN, 2024).

In 2018 over 62.32 million people live in extreme poverty in Nigeria representing about 30.90% of the population (World Bank, 2022). According to the National Bureau of Statistics (NBS, 2020), location and education both have a significant impact on poverty. In Nigeria, poverty is mostly perceived as a rural issue because the majority of residents depend on agriculture for a living. According to IFAD (2007), poverty in Nigeria is generally evenly distributed throughout the nation, but it is particularly bad in some regions, such as the desert northern region bordering Niger. Rural areas have a particularly high level of poverty since there are few or no social services and little infrastructure. Farm and non-farm activities are becoming increasingly important, but little is known about how they fit into rural households' income generating plans in emerging nations like Nigeria (Ibekwe, Onyemawa, Henri-Ukoha, Korie & Nwaiwu, 2010). Even though it is common knowledge that rural households have a propensity to work several jobs, it is important to systematically relate livelihood diversification to programs aimed at reducing rural poverty and ensuring food security.

Statement of the problem

Although poverty is a global problem, its consequences are particularly noticeable in rural South East Asia and sub-Saharan Africa (Uchechi & Okewale 2010). Despite being endowed with natural resources, Nigeria, one of sub-Saharan Africa, continues to experience widespread poverty. This is accurate when one considers that, according to Iheke (2010), 35% of Nigerians live in absolute poverty, with over 70% of the population being categorized as poor. According to Igbuzor (2006), poverty is defined as the inability of a person to obtain basic requirements of life or to live on less than $1 per day. According to Obadan (2001), poverty has numerous manifestations and aspects, including living in unsanitary neighborhoods, being over-indebted, being dependent on money, being unable to exercise one's independence, and being unable to meet one's fundamental requirements. These exert pressure on the physical environment, contributing to the deterioration of the environment.

The effects of poverty on rural households are troubling because these households are more vulnerable to adverse changes in the political, social, economic, and environmental factors that worsen their poverty. Federal Office of Statistics (FOS, 2011) and Iheke (2010) list these factors as being worsened food insecurity, risk-averse behavior to protect the meager resources at hand, low income due to subpar social amenities, and unfavorable government policies. Because rural households are particularly vulnerable to poverty, it is necessary to start programs that will increase their sources of income in order to reduce their poverty. The majority of people in sub-Saharan Africa's rural areas make their living primarily from agriculture, so it is crucial to increase agricultural productivity through the use of advanced technology as well as their capacity to market and distribute their goods in order to increase their income (Uchechi & Okewale 2010). In Nigeria, the poverty headcount rate in 2019 was 40.09%, or 40.1 percent of the country's population. While the squared poverty gap index (severity) is 5.63 and the poverty gap index is 12.85%. In Adamawa state, the poverty headcount was 75.4%1, the poverty gap index was 27.64%, and the squared poverty gap index (severity) was 13.21%; poor families are headed by 82.6% women and 70.9% men, respectively (NBS, 2019).

Objective of the Study

i. describe the socio-economic characteristics of the respondents
ii. determine the poverty status of the respondents in the study area,
iii. examine the determinants of poverty among the respondents

Materials and Methods

Study Area

The study was carried out in Ganye local government areas of Adamawa State (Fig. 1). Ganye local government areas lies between latitude 8º12’- 8º40’North and longitude 11º37’-12º15’ East. It is bounded by Jada to the north, Mayo-belwa to the northwest, Toungo to the south, Taraba state to the west and Cameroon Republic to the east.

Ganye has a land mass of 2,011.47 km2 and a projected population of 240,686. The mean annual temperature of the study area for maximum is 32.3ºC and minimum 19.6ºC while the average annual rainfall total is 1,231 mm with a distinct dry season which begins in November and ends April and the wet season begins in April and ends in October or sometimes in November. The areas are located within the Guinea Savannah zone of the Nigeria's vegetation zones. The major economic activity in the area is agriculture. Food crops grown in the area are maize, sorghum, cowpea, cassava and potatoes. While cash crops such as groundnuts, rice, yam and sugarcane are produced in large quantities. Major livestock reared in the zone are cattle, sheep and goats (Adebayo and Zemba, 2020; Akosim et al., 2020; Kadams et al., 2020; Zemba et al., 2020).

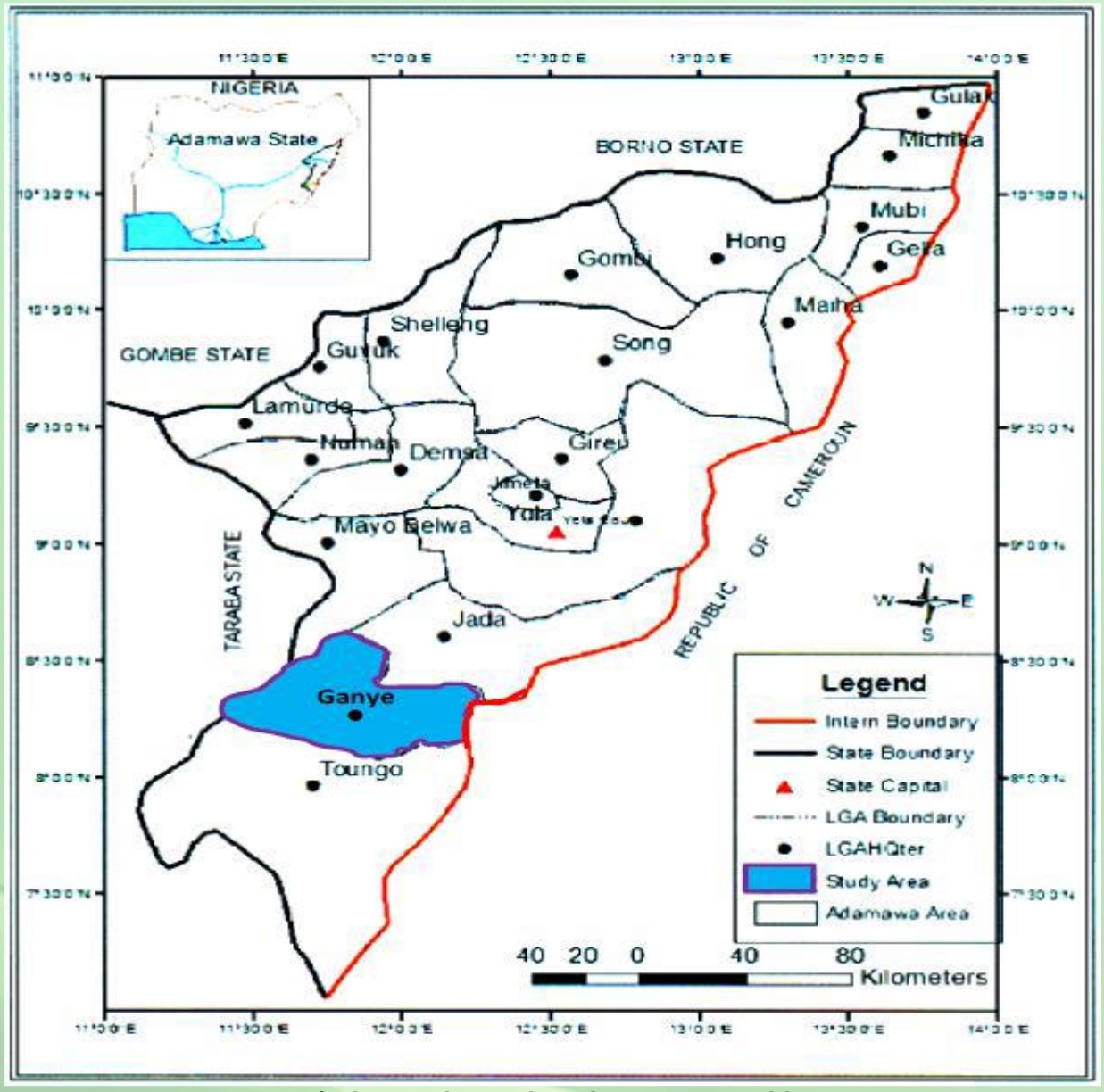

Fig 1:Map of Adamawa Showing the study Area Source: Adebayo, 2020

Sampling procedure and Sampling Size

A multi stage sampling technique was used to collect primary data from 250 rural farming households in the study area using questionnaire, selected from fifteen farming communities namely Santasa, Sangasumi, Sanyigmi, Gamu, Dalebbi, Dimgam, Gurum, Gurum-Novan, Jangani, Kwana-doya, Yebbi, Sugu, Jagg, timdore and Dabirra respectively. The respondents were randomly selected from each community proportionate to the number of the household in each community.

Method of Data Collection

Primary data was gathered from rural homes in the study area using a structured questionnaire and interview schedule.

Analytical Technique

Both descriptive and inferential statistics were used to achieve the research objectives of the study. Descriptive statistics was used to describe the socioeconomic characteristics of the respondents while inferential statistics such as Foster, Greer and Thorbecke (FGT) poverty model to determine their poverty status and Logit regression model was used to determine theeffect of some socio-economic characteristics on poverty.

Foster, Greer and Thorbecke (FGT)Poverty model

One of the methods that was used in the study is the popular FGT measures of poverty. This was used to determine the Poverty Status of the farming households in the study area. The poverty status of the farmers was measured based on their consumption/expenditure from the sources of their livelihood. The consumption/expenditure level that separates the poor from the rest of the population is called the poverty line. The poverty line helps us in classifying the poor and non-poor and then calculates the poverty indices for rural households in the study area. The first step in calculating the consumption/expenditure based index is to assess a level of consumption/expenditure below which an individual is defined as poor: the so-called poverty line. It is well known that if consumption/expenditure is divided into two categories, food consumption/expenditure and non-food consumption/expenditure, the poorer people are, the higher the proportion of their overall expenditure that is accounted for by food consumption/expenditure. In determining consumption/expenditure levels that can be used to separate the poor from the non-poor, food consumption/expenditure is the most significant measure. Thus a food poverty line (a minimum level of food consumption/expenditure) is first calculated. A non-food minimum allowance is then calculated and added to the food poverty line to provide the total poverty line. This poverty line was used to determine the magnitude and intensity of poverty among the farming household in the study area.

The Foster-Greer-Thorbeeke (FGT, 1984) indices was used to measure the magnitude, depth and severity of poverty. The P_α class of poverty according to Foster *et al.* (1984) can be addressed in respect of poverty incidence, $(\alpha = 0)$; depth of poverty $(\alpha = 1)$; and severity of poverty $(\alpha = 2)$, the higher the value of α, the greater the weight given to the severity of poverty. For $\alpha = 0$, FGT reduces to headcount ratio (H) and when $\alpha = 1$, it reduces to poverty gap and if $\alpha = 2$, we have poverty severity index.

Following Greene (2003) as well as Adigun, Bamiro & Adedeji (2015) general class of a poverty measure which combines these three characteristics of poverty can be written as:

$$P_\alpha(y,z) = \frac{1}{n}\sum_{i=1}^{q}\left(\frac{z-y_i}{z}\right)^\alpha \quad (1)$$

Where:

n = Total number of households in a population

q = The number of poor households

z = The poverty line (Naira)

y_i = Household per capita expenditure (Naira)

α = Poverty aversion parameter and takes values, 0, 1, 2

$\left(\frac{z-y_i}{z}\right)$ = Proportionate shortfall in income below the poverty line

α takes on the value 0, 1, 2, to determine the type of poverty index.

When $\alpha = 0$, the expression reduces to

$$P_o = \left(\frac{1}{n}\right)q = \left(\frac{q}{n}\right) \quad (2)$$

Where:

P_o = poverty incidence

n = total number of households in a population

q = the number of poor households

This is referred to as the Headcount Ratio (poverty incidence) describing the proportion of the population that falls below the poverty line. This measure gives equal weight to all poor irrespective of the intensity of their poverty. The headcount ratio has been criticized for focusing only on the number of the poor being insensitive to the severity of poverty and changes below the poverty line. That is, it treats all the poor equally whereas not all the poor are

equally poor. Also, neither a transfer from the less poor to poorer, nor a poor person becoming poorer would register in the index, since the number of the poor would not have changed.
Where $\alpha = 1$, the expression in the equation (equation 1) reduces to:

$$P_1 = \frac{1}{n}\sum_{i=1}^{q}\left(\frac{z - y_i}{z}\right) \quad (3)$$

Where:
P_1 = poverty gap
n = total number of households in a population
q = the number of poor households
z = the poverty line (Naira)
y_i = expenditure of the poor household less than the poverty line (Naira)
And this is called Poverty Gap (depth of poverty) each poor is weighed by his or her distance from the poverty line, relative to z.
Where $\alpha = 2$, the expression now becomes

$$P_2 = \frac{1}{n}\sum_{i=1}^{q}\left(\frac{z - y_i}{z}\right)^2 \quad (4)$$

Where:
P_2 = poverty severity
n = total number of households in a population
q = the number of poor households
z = the poverty line (Naira)
y_i = expenditure of the poor household less than the poverty line (Naira)
Equation (4) is called poverty severity index. In this measure, the weight given to each poor is proportional to the square of his or her income shortfall from the poverty line. This index weighs the poverty of the poorest individual more heavily than those just slightly below poverty line. This measure all the three indicators of the poverty stated above.

Binary Logit Model
The Binary Logit (BNL) Model was employed in this study. In this model, the data on the dependent variable (poverty status) is bi-variate, that is, poor or non-poor. The BNL model was therefore, employed due to the nature of the decision variable. For such a dichotomous outcome, the BNL model is the most appropriate analytical tool (Pur et al. 2016; Benedicta et al. 2010; Kristof, 2009). The implicit form of the model is expressed as:

$$Y = \ln\left(\frac{\emptyset_1}{1-\emptyset_1}\right) = \beta_o + \sum_{j=1}^{k}\beta_j X_{ij} + \varepsilon_i \quad (5)$$

Where:
Y = Dependent variable (i.e, the binary variable; Y = 1 for a household that diversified livelihood activities and Y = 0 for otherwise.
β_o Intercept
β_i = Estimated parameters
X_i = Explanatory variables
i = 1, 2, 3, ------ n number of explanatory variables
ε_i = the matrix of unobserved random effects, $\frac{\emptyset_i}{1-\emptyset_i}$ is "odd", and $ln\left(\frac{\emptyset_i}{1-\emptyset_i}\right)$ is the logarithm of "odds".
Equation (5) can be manipulated to give the odds ratio using equation (6):

$$\frac{\emptyset_i}{1-\emptyset_i} = \exp\left(\beta_0 + \sum_{i=1}^{k}\beta_i X_i\right) \quad (6)$$

The probability of the extent of access was calculated using equation (7):

$$\emptyset_i = \frac{exp\left(\beta_0 + \sum_{i=1}^{k}\beta_j X_{ij}\right)}{1 + exp\left(\beta_0 + \sum_{i=1}^{k}\beta_j X_{ij}\right)} \quad (7)$$

Equation (11) is intrinsically linear since the logit is linear in X_i (Gujarati, 2004); it indicates that probability $\emptyset_i$lies between zero and one and vary non-linearly with X_i. The equation for calculating partial effects of continuous variable is denoted by:

$$\frac{\partial \emptyset_i}{\partial x_i} = \emptyset_i(1-\emptyset)\beta_j \quad (8)$$

The partial effects of the discrete variables will be calculated by taking the difference of the mean probabilities estimated for the respective discrete variable, X_i = 0 and X_i = 1.
The marginal effects measure the expected change in probability of a particular choice being made with respect to a unit change in an explanatory variable (Greene, 2003).

$$Y = \ln\left(\frac{\emptyset_1}{1-\emptyset_1}\right) = \beta_o + \sum_{j=1}^{k} + \beta_1 X_1 + \beta_2 X_2 \ldots\ldots + \beta_{10} X_{10} + \varepsilon_i \quad (9)$$

Y = Dependent variable (i.e, the binary variable; Y = 1 for poor and Y = 0 for non-poor.
The independent variables were defined as follows:

Table 1. Exogenous variables in the binary logit regression to test poverty status

Variable	Measurement	Expected sign
Age (X_1)	In years	±
Sex (X_2)	Binary variable (1=male, 0=otherwise	+
Marital Status (X_3)	Binary variable (1=married, 0 = otherwise)	+
Households Size (X_4)	Number	+
Formal Education (X_5)	Years	±
Primary Occupation (X_6)	Binary (1 = farming, 0 = otherwise)	±
Access to Credit (X_7)	Binary (1= yes, 0 = No)	±
Total Annual Income (X_8)	Naira	+
Annual remittances(X_9)	Naira	+

Results and Discussion

Socio-economic characteristics of the respondents

The socio-economic characteristics of the respondents here is presented in Table 1. Majority 82.80%) of the respondents are less than 50 years of age with the mean age of 41.25 years. The results showed that 89.18% of the household heads were male. The finding also agrees with Micheal et al. (2015) which revealed that there are more male-headed households in rural Nigeria than female-headed households. Majority (85.60%) of the respondents were married. This indicates that married people constitute bulk of household heads in the rural areas. This agrees with Igwe (2013) who reported that married people could imply larger household size with more mouths to feed. This could aggravate poverty. It also shows that majority (84.00%) of the respondents had one form of formal education or the other. The result revealed that majority of the respondents were literate and this can enhance the level of productivity. This agrees with the study conducted by Ume and Ochiake (2016) that education plays a vital role in formal orientation on dessimination of improved farm practices.

The result on household size reveals that, majority (41.20%) were between 6 – 10 people with a mean household of 7 people. This indication implies that a large household size means more responsibility to catter for the need of the family. The results indicate that75.20% of the respondents were engaged in farming as their primary occupation which include both arable cropping and rearing of livestock. This implies that major occupation of most of the household heads in the study area was farming. This finding corroborates with the finding by Odoh and Nwibo (2016) and Dia et al. (2023) who posited that most rural family in Nigeria are engaged in farming as their primary occupation.

The result shows that majority (82.80%) of the respondents had farm size between 1 – 3 hectares with mean farm size of the respondents is about 2.56 hectares. This is an indication that the farmers in the study area are small-scale farmers, hence food production will be in subsistence level. This finding corroborates with the finding o Fadipe at al. (2014) that majority of rural farmers in Nigeria are small-scale farmers who cultivate less than 5 hectares of land. The result indicates that 85.20% of the respondents had between 1 – 20 years farming experience. This indicates that the farming households' heads had farming experience that can help them improve their productivity on the farm by knowing the correct practices. It also revealed that 87.60% have no access to credit facilities. Their lack of access to credit facilities is as a result of them not being in any registered cooperative or farmers association. This study is in agreement with the study conducted by Sekumade and Osundare (2014) who posited that only few in the rural communities in Nigeria had access to credit.

Table 1. Socio-economic characteristics of the respondents (N=250)

Socio-economic characteristics	Frequency	Percentage
Age		
20 – 29	30	12.00
30 – 39	102	40.80
40 – 49	75	30.00
50 – 59	27	10.80
60 and above	16	6.40
Mean	41.25	
Sex		
Male	211	84.40
Female	39	15.60
Marital Status		
Married	214	85.60
Divorced	11	4.40
Widowed	25	10.00
Educational Level		
Non formal education	40	16.00
Primary education	101	40.40
Secondary education	87	34.80
Tertiary education	22	8.80
Household Size		
1 – 5	86	34.40
6 – 10	103	41.20
11 – 15	35	14.00
16 – 20	17	6.80
21 and above	9	3.60
Mean	7	
Primary Occupation		
Farming	188	75.20
Civil servant	43	17.20
Business	19	7.60
Farm Size (Ha)		
<1	8	3.20
1 – 3	207	82.80
4 – 6	35	14.00
Mean	2.56	
Farming Experience		
1 – 10	79	31.60
11 – 20	134	53,60
21 – 30	37	14.80
Access to Credit		
Yes	31	12.40
No	219	87.60

Source: Field Survey 2024

Assessing the Level of Poverty among Rural Farming Households

Analysis of Expenditure of Respondents and Determination of poverty line

The Foster-Greer-Thorbeeke (FGT) class of poverty measures was employed to estimate the poverty status of the rural farming households in the study area. Following the adoption of Foster, Greer and Thorbeeke measures the households' total expenditure was used to determine the households' poverty status. The result presented in Table 2 shows the household food and non-food expenditure, total expenditure, per capita expenditure, mean per capita expenditure and poverty line. The poverty line was constructed as two-third of the mean per capita household expenditure of all households. This approach has been used by many researchers and institutions (Oyakhilomen & Kehinde, 2016; NBS, 2020). Households were then classified into their poverty status based on the poverty line.

Hence, non-poor households were those whose per capita expenditure was above or equal to two-third of the mean per capita expenditure (poverty line) of all households while those households whose per capita expenditure were below two-third of the mean per capita expenditure were classified as poor. Based on this, the poverty line constructed as two-third of the mean per capita expenditure of all the households was N111,032.98. This implies that households whose annual per capita expenditure fell below N111,032.98 were classified as poor while households whose per capita expenditure equalled or above the poverty line was classified as non-poor.

Table 2. Analysis of Expenditure of Respondents and Determination of Poverty Line

Item	Amount (N / Annum)
Household Food Expenditure	69,362,195.00
Household Non-food Expenditure	53,208,640.00
Total Household Expenditure	122, 570, 835.00
Per Capita Household Expenditure $= \frac{Total\ household\ Expenditure}{Number\ of\ household\ members}$	41,637,366.50
Mean Per Capita Household Expenditure (MPCHE)	166,549.47
2/3 MPCHE (Poverty line)	111,032.98

Source: Field Survey, 2024

Poverty Indices of the Rural Farming Households

The values for the poverty measures the poverty incidence (P_o), Poverty gap index (P_1) and Poverty severity (P_2). From Table 3, a relative poverty line of N111,032.98 was established from the annual food and non-food expenditure of the rural farming households. This implies that a household having an average annual expenditure above the N111,032.98 was considered non-poor, those with average annual expenditure between N55,516.49 and N111,032.98 were considered moderately poor while those having annual average expenditure less than N55,516.49 were considered very poor. Thus the result of the poverty incidence (P_o) is 0.60 which indicate about 60% variability in the poverty of farming households were poor which means 62% of the farming household were not poor. That is out of the 250 rural farming households interview 151 of them were poor. This indicates that poverty was not predominant among the rural farming households which might be due to the fact that most of the household heads diversify their livelihood activities to earn more income to meet their daily needs.

The poverty gap index (P_1) results revealed was 0.31 indicating the gap between the poor and poverty line was 31%, therefore the poor will require 31% rise in their per capita expenditure to become non-poor which translate into N34,420.22 increament to the per capital expenditure of the poor. The poverty severity index (P_2) of the rural farming households was 0.19. This indicates that out of 151 poor households interview only 48 of that households were extremely poor. This implies that poverty is severe among poor farming households with about 19% of the farming households constitute the poorest among the respondents. In other words, the squared poverty gap takes into account not only the distance separating the poor from the poverty line, but also the inequality among the poor. The result is similar with the findings of Asogwa et al. (2012) who reported a poverty gap of 0.27 and poverty severity of 0.15 among farming households in Nigeria.

Determinants of Poverty among farming households in the Study Area

A Logit regression was employed to determine the determinants of poverty among farming households in the study area (Table 4). The usual regression diagnostics for the binary logistic regression models were computed to assess the fit of the individual observations. In this study, the result of the goodness of fit test shows that the overall goodness of fit is reflected in a non-significant of Pearson Chi-square p-value which is 0.9822. This implies that the data has a good-fit in explaining the relationship. The model adequacy test shows p-value for hat to be 0.000 which is highly significant and p-value for hatsq is 0.726 which is non-significant. The non-significant of hatsq suggest good model adequacy.

The result showed that The log likelihood function (-60.37) shows that the estimated model including a constant and the set of explanatory variables fit the data better. This implies a better relationship between odds ratio, probability of factors influencing poverty status (dependent variable) and the explanatory variables included in the model collectively contribute significantly to the explanation of farmers' influence in adopting a livelihood diversification strategy. R^2 (coefficient of determination) is 0.6047, suggesting that the model has a good fit to the data. This indicates that 60% of the variation in poverty in the study area is explained by variations in the specified explanatory variables on the changes in poverty among the respondents.

Table 3. Poverty Indices of the Respondents

Poverty Indices	Estimates
Mean Per Capita Household Expenditure	N166,549.47
2/3 Mean Per Capita Household Expenditure (Poverty line)	N111,032.98
1/3 Mean Per Capita Household Expenditure	N55,516.49
Poverty incidence (P_o)	0.60
Poverty depth (P_1)	0.31
Poverty severity (P_2)	0.19
Poor Households	60%
Non Poor Households	40%

Source: Field Survey, 2024

The results logit regression indicates that age (P<0,01), sex (P<0,05), marital status (P<0.10), household size (P<0.05), formal education (P<0.05), primary occupation (P<0.01), access to credit (P<0,05), annual income (P<0.05)) and annual remittances from children and relatives (P<0.01) significantly influence the probability that a household will be poor or non-poor.

The result of age of the household heads was found to have negative effect on the level of poverty and was significant at P<0.01 probability level with marginal effect of 0.8244273. This implies that a unit increase in age of household heads reducees their income by 82%. That is the older the respondents are more likely to become poor compare to their younger counterpart. This supports the theory put forth by Ola-fakuade et al. (2019), according to which the probability of poverty rises with the age of the household heads.

Sex had negative effect on level of poverty with marginal effect of 0.1077759 and was significant at P<0.05 level of probability. This implies that male household heads are 10% more likely to become poor compare to their female counterpart. Because most male household heads shoulder more responsibility than the female from both most culture or society.. This supports the findings of a study by Ike and Uzekwe (2015), which suggested that the majority of rural Nigerian women depend on their male counterparts for productive resources.

Marital status had negative effect on poverty and statistically significant at P<0.01 probability level to poverty with marginal effect of 0.0675921. This results show that monogamous marriage, divorce/separation and widowhood are negatively and significantly by 6% and is correlated with the probability of being poor. This implies that monogamous marriage has probability of reducing poverty polygamous marriage increases poverty. This supports the theory put forth by Anyanwu (2014), who said that monogamous marriage has the best chance of lowering poverty in Nigeria.

The household size had negative with marginal effect of 0.7702981 and was significant at P<0.05 probability level. The indicates that a unit increase in household size increases the likelihood of increasing the poverty level of household by 77%. This is consistent with research by Masood and Nasir (2014) and Adekoya (2014), which suggested that the number of children in a household increases its likelihood of poverty because they are often unproductive and consume a significant amount of household income for things like clothing, food, and school supplies.

Formal education in years have a positive impact to the level of poverty and is significant at P<0.05 level of probability with marginal effect of 1.123572, which implies that a unit increase in level of education will reduce the level of poverty of household by 112%. This is in line with the findings of Ume and Ochiaka (2016), who suggested that education makes people more objective when assessing innovation, which will improve their farm's output and reduce poverty.

Table 4. Logit Regression Result on Determinants of Poverty Status among the Respondents

Variable	Coefficient	Standard Error	Z- Statistics	Marginal Effect
Constant	8.052091	2.364506	3.41***	
Age (X_1)	-0.1930663	0.0374124	-5.16***	0.8244273
Sex (X_2)	-2.227702	0.8760867	-2.54**	0.1077759
Marital Status (X_3)	-2.694264	1.60295	-1.68*	0.675921
Household size (X_4)	-0.2609777	0.1104238	-2.36**	0.7702981
Formal Education (X_5)	0.116513	0.0471543	2.47**	1.123572
Primary Occupation (X_6)	1.091805	0.23677	4.61***	2.979647
Access to credit (X_7)	0.342112	0.1427336	2.40**	1.407918
Total annual income (X_8)	7.86e-06	3.34e-06	2.35**	1.000008
Annual remittances (X_9)	1.647845	0.4970097	3.32***	5.19577
Diagnostic Statistics				
Chi-square 184.68***				
Log-likelihood -60.374707				
Pseudo R^2 0.6047				
Specification test				
Hat	1.145496	0.1602512	7.15***	
Hatsq	0.0695403	0.240044	2.90	
Goodness-of-fit test				
Pearson chi2 (240) = 245.34				
Correctly classified 98.22%				

Source: Computed Field Data, 2024

Note: *** = Significant at 1%, ** = Significant at 5%, * = Significant at 10%

Primary occupation of the respondents in the study area have a positive effect on poverty and is significant at P<0.01. The marginal effect of primary occupation is 2.979647. This is an indication that the more the respondents engaged in the primary occupation the further away they will be the probability of being poor. This results is consistent with that of Kadurumba et al. (2010), who suggested that household heads' dedication to their primary occupation contributes to the decrease of poverty.

Rural household access to credit is significant at P<0.05 level of probability and has a positive effect poverty status with a marginal effect of 1.407918. This suggests that a unit increase in access to credit by farm household in the study area will increase the probability of the households to escape poverty 130%. This is consistent with research by Oyakhilomen and Kehinde (2016), who found that having access to credit positively affects income diversification, which in turn lowers poverty.

Household total annual income of the respondents in study area in naira was significant at P<0.05 level and has a positive effect on poverty with marginal effect of 1.000008. This implies that as the level of income of the household heads increases the lower will be the probability of being poor by 100%. Duniya and Sanni (2015), who proposed that an increase in revenue from a variety of money-generating activities lowers household poverty, support this finding.

Annual remittance from children and relatives has a positive effect on poverty status and statistically significant P<0.01 with marginal effect of 2.357952. This signifies that a unit increase in remittances of household will reduce the poverty of that household by 235%. This implies that remittances contribute to household income and consequently improved food security status of the households thereby reducing the probability of being poor. This finding is agrees with Odoh and Nwibo (2016) who revealed remittances have a potential multiplier effect, as they are associated with a poverty reduction.

Conclusion and Recommendation

Based on the finding it can be concluded that the level of poverty among farming household, showed that poverty incidence is 0.60 which indicate about 60% in variability of poverty of households of rural farming household within the poor. The poverty gap indicates that the poor will require 31% rise in their expenditure to become non-poor which translate into ₦34,420.22. The poverty severity index of the farming households shows 19% of the farming households that constitute the poorest among the farming household. This implies that poverty is severe among poor farming households. The result of Logit regression model indicates that seven out of the ten independent variables were positively related to poverty status of the respondents, while age, sex, marital status, household size, formal education, primary occupation, access to credit, total annual income and annual remittances were statistically significant at P<0.01, P<0.10, P<0.01, P<0.05, P<0.01, P<0.01, P<0.05, P<0.10 and P<0.05. Based on the finding it was recommended that, there is need for sufficient resources to develop infrastructure which includes roads network, electricity, water and telecommunication for easy evacution of farmers' output to urban area and transportation of inputs into the rural areas. There is a need for the farming households to have access to credit schemes, this could increase the off-farm activities that could generate more income for the household and thereby reduce their poverty.

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