



SOCIOECONOMIC DETERMINANTS OF POVERTY STATUS AMONG LOWLAND RICE FARMERS IN KOGI STATE

¹Halliru, M., ²Umar, S. and ²Shuaib, K. A.

¹Bilyaminu Usman College of Agriculture, Hadejia – Jigawa state

²Department of Agricultural Economics and Extension, BUK

Corresponding Author's Email: mmhalliru@gmail.com, **GSM:** 07034525410

ABSTRACT

The study examined the socioeconomic determinants of poverty status among lowland rice farmers in Kogi State, Nigeria. The specific objectives of the study were to describe the socioeconomic characteristics of the farmers, estimate their poverty status, estimate the determinants of poverty among the farmers respectively. A multistage sampling technique was employed to select 218 respondents across flood-prone communities. Data were collected using structured questionnaires and analyzed through descriptive statistics and inferential statistics (FGT Model, PSM/Logistic regression). The findings revealed that most rice farmers were male, within the economically active age associated with low educational attainment and a high dependence on farming. The poverty assessment showed that a large proportion of respondents (66.06%) live below the poverty line, with noticeable depth (0.499) and severity (0.541). The results of poverty determinants indicated that age, household size, annual income and extension contact were significant at 1% ($P < 0.01$) while gender were reported significant at 5% ($P < 0.05$). The study concludes that over 50% of the respondents were living below the poverty line with an excessive poverty gap that requires critical attention for livelihood improvement. The key variables determining poverty status in the study area include annual income, contact to extension agents and household size among others. It recommends the development of context-specific flood mitigation infrastructure, improved access to agricultural inputs and credit, and strengthened extension services to build resilience and reduce rural poverty.

Keywords: Poverty, Rural, Livelihood, Income, Inequality, Lowland

INTRODUCTION

Poverty remains one of the most pressing socioeconomic challenges in Nigeria, despite the country's vast human and natural resources. Over 80% of the population resides in rural areas, where the economy is predominantly agrarian, yet subsistence agriculture persists alongside widespread deprivation (Adepoju, 2019). The paradox of poverty amid plenty is a persistent theme in Nigeria's development narrative, with increasing poverty rates, income inequality, and inadequate access to productive resources despite reported economic growth (Babatunde *et al.*, 2019). Rice is a vital food staple and a strategic commodity in Nigeria's agricultural sector, with cultivation spread across all agro-ecological zones (Oluwafemi *et al.*, (2018). Its significance in the national diet has elevated its importance in poverty reduction initiatives, particularly among rural farming households (Ameh *et al.*, 2021). Despite this, the socioeconomic conditions of rice farmers—such as income levels, education, household size, and access to productive inputs—continue to influence their poverty status. In the face of worsening flood events and economic instability, understanding the determinants of poverty among rice farmers becomes essential. This study investigates how socio-economic characteristics shape poverty outcomes for lowland rice farmers in Kogi State, where farming households are increasingly vulnerable to both environmental and economic shocks.

Despite numerous poverty alleviation initiatives in Nigeria, poverty remains widespread and persistent, especially among rural farming populations. In Kogi State, lowland rice farmers face heightened poverty due to a combination of socioeconomic challenges including low income, limited access to education and health services, land inequality, and limited financial resources. These factors not only affect individual livelihoods but also perpetuate intergenerational cycles of poverty (Shorrocks, 2016; Alkire & Santos, 2014). Although Nigeria is endowed with significant agricultural potential and rice is considered a strategic crop for national food security (Ojo *et al.*, 2020; Ameh *et*



al., 2021), smallholder rice farmers continue to face severe welfare challenges. Poverty in this sector is not solely a matter of income, but is multidimensional—encompassing education, access to health services, and social participation (UNDP, 2020). Moreover, structural challenges such as weak governance, income inequality, and inadequate infrastructure compound the problem (Ogundipe & Akinbobola, 2019). Hence, there is a critical need to identify and quantify the specific socioeconomic determinants of poverty among lowland rice farmers in Kogi State to inform tailored interventions. The main aim of this study was to analyse the socioeconomics determinants of poverty status among lowland rice farmers in Kogi State, Nigeria, while the specific objectives are describe the socio-economic characteristics of lowland rice farmers, evaluate the level poverty status of lowland rice farmers and estimate the determinants of poverty status among rice farmer.

METHODOLOGY

The Study Area

The study was conducted in Kogi State, Nigeria. The state is an agrarian state with a large percentage of the population engaged in farming and agro allied activities as their primary economic activity. Kogi state has an area of 29,581.9 square kilometers with a population of 4.37 million in 2015 (Kogi Statement Government, 2007). The State has an average maximum temperature of 33.2°C and average minimum of 22.8°C. The State has two distinct seasons – dry season, which lasts from November to February and the raining season that lasts from March to October. Annual rainfall ranges from 1016mm- 1524 mm. The State is drained by the two major rivers in Nigeria (Benue and Niger) as well as other rivers, streams and lakes/pond and holds great potential for irrigation. The alluvial soil deposited along the banks of these Rivers provides great opportunity for the cultivation of rice and other crops.

Sampling Technique and Sample Size

A multi-stage sampling technique was employed for this study. The first stage involved purposive selection of Kogi state due on the predominance of lowland rice farmers affected by flood; and incidence of poverty rate, the second stage involved the purposive selection two (2) Local Government areas based on the predominance of flood activities and high poverty status. The third stage involved random selection of three (3) communities from the selected LGAs. The final stage involved selection of farmers based on the sampling frame of lowland rice farmers from the selected LGAs within the state. The report form the reconnaissance survey reveals the sampling frame of the selected LGAs was **502** while the raosoft online calculator was used to arrive to sample size of **218** respectively.

Table 1: Sample Frame, Sample Size and Coverage Area

<i>Local government</i>	<i>Communities</i>	<i>Estimated no of rice farmers</i>	<i>No. of rice farmers selected</i>
<i>Kogi</i>	Koton Karfe	78	36
	Egyehya	85	36
	Akpaku	86	36
<i>Lokoja</i>	Okumi	90	37
	Kabawa	84	37
	Sarkin Noma	79	36
<i>Total</i>		502	218

Sources: Preliminary Studies, 2023

Data Collection and Analysis

Primary data was used for this study. The data was collected using structured questionnaire which was administered by the researcher and trained enumerators. Data on the strategies to mitigate flooding activities and from lowland rice farmers in the study area, poverty status. The data collected for this study was analyzed using descriptive and inferential statistics. The socio-economic characteristics of lowland rice farmers was analyzed using descriptive statistics, the poverty status of



lowland rice was analyzed using FGT model, Propensity matching score was used to analyse the effects of flood on farmers household income and productivity

Descriptive statistics such as frequency, percentage and tabulation, use of central tendency and dispersion (mean, mode, median and standard deviation). This was used to describe the socio-economic, the nature and occurrence of flood in the study area, the level of flood vulnerability among rice farmers and coping strategy characteristics of the farming households in the study area.

Foster Greer and Thorbecke (FGT) Model

Poverty Line and P- alpha poverty measures

The poverty line of \$1.90 US dollar per day recommended by World Bank for developing countries as a basis for determining poverty status was used to establish poverty status of lowland rice farmers. The naira equivalent of the poverty line is ₦2,906.38 (\$1.90) at ₦1, 547.70 exchange rate per dollar. P- alpha measures proposed by Foster et-al.(1984) was used in analyzing poverty. They include the head count index P_0 , poverty gap index P_1 , and poverty severity index P_2 . The general formular for this class of poverty measures depends on a parameter α which takes a value of zero (0) for the head count, one (1) for the poverty gap and two (2) for the poverty squared gap. Foster Greer and Thorbecke Index (FGT Index) has found a wider application in scholarly works. The model is a class of additively decomposable measure of poverty. The measure subsumes the headcount index and the poverty gap, and provides the distributional sensitive measure through the choice of a poverty aversion parameter “ α ”; the larger the value of the “ α ”, the greater the weight given by the index and severity of poverty (Anyawu, 1997). The general specification of the model is given as;

$$P_\alpha = \frac{1}{n} \sum_{i=1}^q \left[\frac{Z - Y_i}{Z} \right]^\alpha \quad (\alpha \geq 0) \dots\dots\dots(1)$$

P_α = Foster Greer and Thorbecke index ($0 \geq P_\alpha \geq 1$)

n = Total number of the sampled households under consideration

z = Poverty line (1.90 US Dollar per day ₦1, 547.70)

Y_i = Daily per capita expenditure of i th households

α = FGT parameter ($\mu \geq 0$); i = Individual households

The α takes on a value of 0, 1, 2, with different implications;

when $\alpha = 0$, it measures poverty incidence. This translates to the headcount ratio that is the proportions of the households below poverty level, 1 for poverty gap and 2 for the severity of poverty.

$$\text{Daily per Capita expenditure} = \frac{\text{Total household expenditure}}{\text{Household size}} \dots\dots\dots(2)$$

Headcount Index (P_0)

This measures the proportions of the population that is counted as poor, often denoted by P_0 .

Formally,

$$P_0 = \frac{1}{n} \sum_{i=1}^n I(y_i < z) \dots\dots\dots(3)$$

Here, $I(.)$ is an indicator function that takes a value of 1 if the bracketed expression is true, and 0 otherwise. So if expenditure (y_i) is less than the poverty line (z), then $I(.)$ equals 1 and the household would be counted as poor.

Poverty Gap Index (P_1)

This measures the extent to which individuals on average fall below the poverty line, and expresses it as a percentage of the poverty line. More specifically, define the poverty gap (G_i) as the poverty line (z) less actual income (y_i) for poor individuals; the gap is considered to be zero for everyone else.

Using the index function, we have;

$$G_i = (z - y_i) \times I(y_i < z)$$

Then the poverty gap index (P_1) may be written as;

$$P_1 = \frac{1}{n} \sum_{i=1}^q G_i / Z \dots\dots\dots(4)$$

Squared Poverty Gap (P_2)

The squares of the poverty gaps relative to the poverty line is also one of the Foster Greer and Thorbecke (FGT) classes of poverty measures that may be written as;

$$P_2 = \text{SPG} = \frac{1}{n} \sum_{i=1}^q \left[\frac{Z - Y_i}{Z} \right]^2 \dots\dots\dots(6)$$

Where n is the size of the sample, z is the poverty line, $G_i = Z - Y$ is the poverty gap and α is a parameter: when α is larger the index puts more weight on the position of the poorest.

Propensity Matching Score (PSM)

Propensity score matching was used to analyse the effects of flood on household income and productivity of the lowland rice farmers in the study area. The underlying principle of PSM is that the predicted probabilities (propensity scores) from an estimated Probit or logit model was used to find matches for households affected by flood. The estimation of average treated effect on the treated (ATT) was specified as follows

$$ATT = \left(\sum \frac{H1}{D} = 1 \right) - \left(\sum \frac{Ho}{D} = 1 \right) \dots \dots \dots (5)$$

The problem with estimation of the equation (1) is that it is not observable. However, it is probable to appraise equation (1) by replacing $\sum \frac{H1}{D} = 1$ with $\sum \frac{Ho}{D} = 0$ as follow

$$ATT = \left(\sum \frac{H1}{D} = 1 \right) - \left(\sum \frac{Ho}{D} = 0 \right) \dots \dots \dots (6)$$

Valuation of equation (2) is a biased estimate of the causal effect of flood. This leads to the modeling of a more reliable estimation by controlling observable characteristics to ensure that been affected by flood is random and not connected with the outcome variables i.e. restricted independence hypothesis is satisfied

$$ATT = \left(\sum \frac{H1}{D} = 1 \right) - \left(\sum \frac{Ho}{D} = 1 \right) \dots \dots \dots (7)$$

$$P(z) = \Pr \left(D = \frac{1}{z} \right) = \sum \left(\frac{D}{z} \right) \dots \dots \dots (8)$$

$$ATT = \left(\sum \frac{H1 - Ho}{D} = 1 \right) \dots \dots \dots (9)$$

$$ATT = \sum \left(\sum \frac{H1 - Ho}{D} = 1, P(Z) \right) \dots \dots \dots (10)$$

$$ATT = \sum \left\{ \sum \left\{ \sum \frac{H1}{D} = 1, P(Z) \right\} - \sum \left\{ \sum \frac{Ho}{D} = 0, P(Z) \right\} \right\} \dots \dots \dots (11)$$

Where, $H1$ = value of the outcome for farming households affected by flood, Ho = value of the outcome for household not affected by flood, D = flood victims (1 for household affected by flood and 0 otherwise), Z = socioeconomic characteristics of the farming households. This study will employ three matching techniques (Nearest Neighbor Matching, Radius Matching, and Kernel Based Matching) of which the result for more robust impact of farmers' involvement in flood as regard rice productivity was selected.

Logit Regression Model

The logit regression is form of regression where the dependent variable is converted into binary variables with 0 and 1 (Wuensch, 2014). The model utilize maximum likelihood estimation method. The merit is the probability of the variables is limited to 1 and 0. The logit regression model identifies maximum estimates, gives better explanation than the linear regression model, with efficient and relevant estimations (Wuensch, 2014). The logit regression model is characterized by a binary dependent variable with mutually exclusive and exhaustive outcomes. The dependent variable is poverty status of rice farmers which is one (1) if poor and zero (0) otherwise. The model is specified as follows;

$$Y_i = F(X_1, X_2, \dots, X_n) \dots \dots \dots (12)$$

The Explicit of the linear functional form is specified as follows:

$$Y = \alpha + \beta X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + U \dots \dots \dots (14)$$

Where;

Y = Poverty status of lowland rice farmers, (poor = 1, non-poor = 0)

X_1 = Sex of household head (1 if male, 0 if female)



- X2 = Age of household head (in years),
X3 = Household size (number)
X4 = Educational status of household head (number of formal schooling)
X5 = Income from on-farm activity (₦),
X6 = Farming experience (in years)
X7 = Membership of household head to cooperative societies (1 if yes, 0 if otherwise)
X8 = Access to extension services (1 if yes, 0 if otherwise)
U = error term; α = constant β_i = regression coefficients

RESULT AND DISCUSSION

Socio-Economic Characteristics

The result as presented in Table 2 revealed that 31% of the farmers were between the ages 30-39 while 6% were between ages of 60-69 with the mean age of 41 years. This implies that majority of the farmers were young and highly productive and were within their economic viable age. Therefore, they can make positive contribution to agricultural development and are able to take important decisions to manage the effects of flood risks. However, they are also potentially more vulnerable to physical demands of farming and the economic strain due to recurrent flooding. This is in line with Henry *et al.*, (2023) who conducted a study on analysis of poverty status among farming households in central zone of plateau state, Nigeria and found out the mean age of 40 years, indicating that majority of the respondents were in their active ages of production in agriculture. The result further showed that 42.7% of the farmers in the study area had between 10-17 years of farming experience, 33.3% had between 1-9 years of experience, 18.3% had between 18-26 years of experience the mean farming experience of the farmers 4.1% had between 27-35 years of experience and 1.4% had between 36-43 years of experience. The mean years of experience was 13 years which indicated that farmers in the study area suggests that a significant portion of these farmers have substantial experience managing agricultural risks and practices. This is also in line with Henry *et al.*, (2023).

The result further showed that 30.2% of the respondents had household size of 4-6 persons while 29.8%, 17.4% and 6% had 7-9, 1-3 and 13-15 persons, respectively with a mean household size of 7 persons. This implies predominance of moderate family structure which may provide a balance between labor availability and the economic demands of the family. Moderate families can benefit from contributions to farming and flood mitigation activities due to multiple family members. Additionally, larger households may have more diverse sources of income or assistance, as multiple family members may engage in off-farm work as well. This is in line with Ameh *et al.* (2021), who conducted a study on gender dimension of poverty among rice farmers in Kogi state, Nigeria and found out mean number of persons per household was 8 persons.

The results also indicate that 41.3% had farm size of 0.4-1ha, 29.8% had 1.73-2.3 ha, while 17.4%, 16.5% and 6% had 2.36 ha-2.98 ha, 1.1 ha-1.72 ha and 2.99 ha-3.61 ha respectively. The mean farm size is 1.7 hectares. This implies that most of the farmer had relatively large farm sizes as indicated by the average farm size of 1.70 ha, which is an important and primary factor of production in agriculture determining factors that affect labour requirement. This is similar to the findings made by Babatunde *et al.*, (2019) who studied determinants of vulnerability to poverty among rice farmers and found out that majority (77.69%) of the respondents had farm size between 0.1-5 hectares, 14.88% had farm size between 6-10 hectares and 7.43% had farm size greater than 10 hectares. The result shows that 59.5% of the rice farmers had annual income between ₦80,000-₦256,000 while 13.4%, 10.6%, 10.2% and 9.7% had ₦784,004-₦960,004, ₦256,001-₦432,001, ₦432,002-₦608,002 and ₦608,003-₦784,003 respectively with a mean income of ₦342,734 per annum. This implies that most of the respondents are average income earners and had little resources at their disposal annually to meet up with their family demands. This also limits their ability to cushion the effects of floods and adopt the necessary control measures. This is in line with Ameh *et al.* (2021).

Table 2: Quantitative Socio-economics Characteristics of the Respondents

Variable	F	%	Min	Max	Mean	SD
Age (years)						
20-29	28	12.8	20	69	40.8899	10.61
30-39	77	35.3				
40-49	69	31.7				
50-59	31	14.2				
60-69	13	6.0				
Farming Experience (Years)						
1-9	73	33.5	1	43	12.8398	7.70
10-17	93	42.7				
18-26	40	18.3				
27-35	9	4.1				
36-43	3	1.4				
Household size (number)						
1-3	38	17.4	1	15	6.8761	3.38
4-6	66	30.3				
7-9	65	29.8				
10-12	36	16.5				
13-15	13	6.0				
Farm size (hectares)						
0.4-1.0	90	41.3	0.4	3.61	1.7050	0.84
1.1-1.72	15	6.9				
1.73-2.35	65	29.8				
2.36-2.98	40	18.3				
2.99-3.61	8	3.7				
Income						
80,000-256,000	128	59.3	80,000	960,004	342,734	261,591
256,001- 432,001	23	10.6				
432,002 - 608,002	22	10.2				
608,003 -784,003	21	9.7				
784,004 - 960,004	29	13.4				

Source: Field Survey, (2024)

From table 3 above shows that majority 82.6% were males while 17.4% were females. This gender distribution suggests that men are more likely to be involved in rice farming, possibly due to cultural, social, or economic factors that influence access to land, resources, and decision-making power. Male farmers, who are typically the primary breadwinners in many households, might have more access to the resources needed to respond to flood risks, such as capital for flood mitigation technologies, better market access, and higher levels of agricultural knowledge. This is in line with Omotesho *et al.*, (2021) who conducted a study on analysis of the capacity building needs of rice farmers in Kwara State, Nigeria found out that majority of the farmers in their study area were male.

The result from Table 3 showed that majority (79.4%) of the farmers were married while 16.1%, 3.2% and 1.4% were single, divorced and widowed, respectfully. The high proportion of married farmers shows that family structures play a significant role in rice farming. Married farmers may have more labor resources available to them, as spouses and children often contribute to agricultural work. This can be beneficial in terms of mitigating the effects of flooding, as families may be able to work together to implement flood-preparedness measures, recover from flood impacts, or diversify their livelihood sources. Additionally, married farmers are more likely to have established household support systems, which can be crucial in times of economic hardship, such as following a flood disaster. This is in line with Ozigbu *et al.* (2022), who studied Implications of flooding on the Socio-Economic Status of residents in flood prone Areas in Bayelsa State, Nigeria who found out that 54.2% of the respondents were married.



The results also revealed that 45.4% of the farmers had secondary school education while amongst the rest of the farmers 29.8% attended primary schools, 19.7% had non-formal education and 5% had university degrees. The relatively medium educational standard among rice farmers in the study area suggest that they could at least read and write. This could serve as added advantage for the respondents to quickly comprehend and understand modern ways of adapting to flood incidence. This is in line with Enwa *et al.* (2023) from their study on impact of flooding disaster on economic returns of fish farmers in Rivers State Nigeria found out that fish farmers in the study area had a high level of literacy. Since education gives farmers access to strategies and technologies that would help them lessen the devastating impact of floods on their fish farms and is viewed as an important tool during the period of flooding and other climate change disasters.

The result reveals that majority of the respondents 68.3% had contact with extension agents, while 31.7% of the respondents had no extension contacts. This implies that there is an adequate extension activity which directly helps farmers to improve their level of productivity, the farmers also had the opportunities to access knowledge and information on how to cope with the effects of flood. This is in agreement with Oladapo (2021) in his study on Incidence of Flooding and Coping Strategies Among Rice Farmers in Selected Local Government Areas, Kwara State, Nigeria described the frequency of extension agent to the on the respondent's farms to be occasional.

The findings further shows that majority (73.4%) of the respondents were members of associations while only 26.6% of the respondents do not belong to any associations. This implies that most of the respondents in the study area had access to advice, information and credit facilities from the associations they belong to which will aid the farmers in recovering from the effect of flood. This is contrary to the findings of Oluwafemi *et al.* (2018) who in their study on Determinants of Poverty among Rice Farming Households in Nigeria: A Gender Analysis revealed that majority of the rice farmers in their study area did not belong to any form of organization or association implying that most of the farmers have less access benefits derived co-operate organizations in terms of training, credits, mobilization of resources, and dissemination of necessary information.

Table 3: Qualitative Socio-economic Characteristics of Rice Farmers

Variables	Frequency	Percentage (%)
Gender		
Male	180	82.6
Female	38	17.4
Marital status		
Single	35	16.1
Married	173	79.4
Divorced	7	3.2
Widowed	3	1.4
Educational level		
non-formal	43	19.7
primary	65	29.8
secondary	99	45.4
tertiary	11	5.0
Contact with extension agents		
Contact	149	68.3
No contact	69	31.7
Membership of Association		
Member	160	73.4
Non-member	58	26.6

Source: Field Survey, (2024)



Poverty Status of Lowland Rice Farmers

Three indicators of poverty were used to analyze the poverty status of the rice farmers as presented in Table 4. Headcount Index (P_0), Poverty Gap Index (P_1) and Squared Poverty Gap (P_2). The poverty line is the threshold used to distinguish between the poor and the non-poor. It represents the minimum income or expenditure required to meet basic needs. The result shows the poverty line to be ₦137,430. This implies that farmers below this poverty line threshold are unable to afford basic necessities and are considered poor. The headcount index measures the proportion of rice farmers living below the poverty line. The result shows that 144 rice farmers are categorized as poor, meaning they have an income or consumption level below the poverty line of ₦137,430 while the remaining 74 individuals are non-poor. This implies a relatively high incidence of poverty in the study population, with more than half of the individuals classified as poor. This study disagrees with Joshua *et al.*, (2024) who found out that only 13.6% of the respondent farmers in mubi north and south local government area of Adamawa state were poor.

The poverty gap measures the depth of poverty, i.e. how far the average income of the poor is from the poverty line. It shows the intensity of poverty and indicates the resources required to lift all poor individuals above the poverty line. The result revealed a poverty gap of 0.4998 (49.98%). this means that, on average, poor farmers require 49.98% of the poverty line ₦137,430 to escape poverty. This translates to approximately ₦68,697.71 needed to close the poverty gap for each poor farmer. This is similar to the findings of Hussaini *et al.*, (2020) who reported that the poverty gap of 21.1% in Kebbi State, Nigeria.

The poverty squared gap, also known as the severity index, accounts for the inequality among the poor. It places greater weight on individuals who are further below the poverty line. A value of 0.5417 indicates high inequality among the poor, with some individuals being significantly worse off than others. This high value suggests that poverty is not only widespread but also unevenly distributed, with some households experiencing extreme deprivation compared to others. This is in line with Yisa *et al.* (2018) who reported a severity index of 0.45 for farmers in Shiroro Local Government Area of Niger State.

Table 4: Poverty Status of Lowland Rice Farmers

Variables	Headcount Index (P_0)				
	Poor	Non-Poor	Poverty line	P_1	P_2
Respondent	144	74	137,430	0.499	0.5417

Source: Field Survey, (2024)

Determinants of Poverty Status among Rice Farmers

The result from Table 5 shows that out of eight (8) independent variables included in the equation five (5) were statistically significant in relation to poverty status at various level of probability. It shows that age of rice farmers, sex, household size, annual income, and contact with extension agent were statistically significant drivers of poverty status of rice farmers in the study area. This is in line with Ejima *et al.* (2019) where they conducted a study on Fadama crop farming and poverty alleviation in Kogi state, Nigeria. The study observed that farm size, household size, annual income, total expenditure and age of the household heads, were determinants of poverty among the farming households in the study area. The pseudo-R square of 0.250 suggests that the variation in the dependent variable was accounted for 25% of the variation on the independent variable. This implies that the overall model is fitted and the explanatory variables used in the model were collectively able to explain the correlates of poverty among the rice farming households in the study area.

The result from Table 5 above further indicate that age was negatively significant at 1% ($P < 0.01$) with a log odd ratio of 0.930 and a coefficient of -0.072. This means that a unit decrease in age will lead to a unit increase in poverty status amongst rice farmers that is the older the rice farmer is the lesser the probability of being poor, the more the responsibilities of family need he has which in turn influences farming participations, reduce hunger and eradicates poverty among rice farming



households. However, the average age of the respondents shows that they are in their economic active age. Hence, the farmers have ability to work in order to earn income which can be used to meet their basic needs. This is consistent with Henry *et al.* (2023) and Elizabeth *et al.* (2023). The results further reveals that sex was positively significant at 5% ($P<0.05$) with a log odd ratio of 3.506 and a coefficient of 1.254. This means that majority of male farmers in the study area have the tendency to be more poor than their female counterparts. This may be due to level of expenditure on family members as household heads. This finding disagrees with Umar *et al.* (2023) who in his study on poverty vulnerability among smallholder rice farmers in North West, Nigeria found that the gender of household heads was significant but negative implying that female headed households are more likely to experience poverty due to increase in consumption vulnerability than households headed by male.

The result also shows that household size, is negatively significant at 1% ($P<0.01$) with a log odd ratio of 0.896 and a coefficient of -0.110. This implies that whenever there is a unit increase in household size, there would be a corresponding decrease in the poverty status of the farming household. This can be attributed to the fact that larger household tend to have higher availability of cheap family labour which enables the cultivation of larger hectares of lands resulting in an increased food production for the household and to a very large extent create more income from the sales of farm produce in the occasion of bumper harvest. This is in agrees with Yisa *et al.* (2020) who in his study of effects of off-farm income on poverty and food security status of farmers in Paikoro area of Niger state, Nigeria found out that household size was significant and negative.

The result also reveals that annual income was found to be positively significant at 1% ($P<0.01$), with a log odd ratio of 1.000 and a coefficient of 0.000. This implies that one unit increase in income will result to one unit decrease in poverty status of the farming household, that is the higher the income of the farmers, the lesser the likelihood of poverty incidence among farming households in the study area. The result also showed that contact with extension agents was negative and significant at 1% ($p < 0.01$) with a log ratio 0.560 a coefficient of 0.413. This implies that contact with an extension agent is associated with a decrease in the likelihood of poverty incidence. Therefore, farmers who interacted with extension agents were **less likely to fall below the poverty line**. The findings reveal that socioeconomic characteristics of the farming households had significant influence on their poverty status. This is also in line with Ejima *et al.* (2019) and Henry *et al.* (2023).

Table 5: Determinants of Poverty Status among Rice Farmers

Model	B	EXP(B)	Std Error	wald	Sig.
Constant	-1.065	.345	1.285	0.687	0.001***
Age	-0.072	.930	0.023	10.306	0.007***
Sex	1.254	3.506	0.465	7.272	0.021**
Level of Education	0.459	1.582	0.198	5.358	0.335
House Hold Size	-0.110	.896	0.070	2.463	0.000***
Annual Income	0.000	1.000	0.000	16.476	0.006***
Membership of cooperation	1.168	3.216	0.424	7.595	0.161
Contact Extension agent	-0.579	.560	0.413	1.969	0.001***
-2 Log likelihood	235.560 ^a				
Cox & Snell R Square	.250				
Nagelkerke R Square	.335				

Source: Field Survey, (2024) *** Significant at 1% ($P<0.01$) **Significant at 5% ($P<0.05$)

CONCLUSION AND RECOMMENDATION

Based on this finding, the following recommendation were made: **targeted poverty alleviation interventions** should be focused on improving **income levels**, especially for **male-headed households**, programs should emphasize **education and access to extension services** to equip farmers with skills and information that enhance productivity, **family planning and support for larger households** can reduce economic strain and improve welfare and promote **access to cooperative societies** as a strategy to provide credit, training, and market linkage.



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