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Determinants of Poverty Status among Arable Crop Farmers in Oyo State, Nigeria

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ABSTRACT

Poverty refers to a condition characterized by a lack of financial resources and essential goods necessary for maintaining a specific standard of living. This study examines the factors influencing poverty levels among arable crop farmers in Oyo State, Nigeria. Data collected from 120 farming households were analyzed using frequency, percentage, the Foster-Greer-Thorbecke (FGT) model, and logit regression analysis. The results indicated that a minority (33.3%) of the respondents were aged between 31 and 40 years. The majority (65.0%) of the respondents were male, and most (60.8%) were married. A significant portion (72.5%) of the respondents identified as Christian, while a majority (68.3%) had attained tertiary education. Additionally, more than half (59.2%) of the respondents reported having 5 to 8 members in their households, and slightly more than half (55.8%) were engaged in farming. The study also found that just over half (59.2%) of the respondents had access to extension services, 50.8% were members of cooperative societies, most (65.0%) farmed for both commercial purposes and personal consumption, and nearly half (48.3%) earned between N50,000 and N100,000. Furthermore, the analysis indicated that the determinants of poverty status among rural farming households in Oyo State, as indicated by the X2 statistic (15.7), were highly significant (P<0.0001). In conclusion, many farmers face challenges such as price volatility, high transportation costs, and pest and disease infestations. It is recommended that farmers utilize improved agrochemicals, including insecticides, herbicides, and pesticides, to combat these issues effectively.

Keywords: Poverty Status, Arable Crop, Farmers.

1.0 INTRODUCTION

Historically, agriculture has been the cornerstone of Nigeria's economy, serving as a primary source of rural employment, food production, and significant export revenues prior to the discovery of oil (Oni and Yussuf, 2007).

The focus on agriculture remained strong, enabling Nigeria to become a net exporter of key commodities such as cocoa, palm oil, rubber, and cotton (IFPRI, 2018). Agriculture contributed over 60% to the National Gross Domestic Product (GDP) during the 1960s, but this figure plummeted to 28.4% in the 1970s (Adenomon and Oyejola, 2013). While poverty is often easily identified, it is more challenging to define (Foster et al., 2010).

As noted by the United Nations (1998) and cited in Golden (2005), poverty fundamentally represents a lack of choices and opportunities, infringing upon human dignity. In Nigeria, poverty remains a persistent issue, particularly affecting the rural economy, where over 70% of the population relies on agriculture for their livelihoods.

Poverty is a global challenge impacting every nation (Chen and Rava Ilion, 2010). Addressing poverty is one of the most formidable challenges for developing countries, where a significant portion of the population lives in poverty.

A recent study by Jatto et al. (2021) indicates that many rural communities are grappling with alarmingly high poverty rates. The study highlights disparities across geopolitical zones, with poverty rates of 76.8% in the North-East, 80.9% in the North-West, 45.7% in the North-Central, 27.38% in the South-East, 19.3% in the South-West, and 25.2% in the South-South. The urban poverty rate stands at 28%, while the rural poverty rate is significantly higher at 72%.

Despite Nigeria's rich agricultural land and abundant natural resources that could support sufficient crop production, rural households continue to face poverty and hunger. This decline in agricultural productivity is particularly pronounced in developing nations like Nigeria (Folorunso, 2016).

MATERIALS AND METHODS

Study Area

The research was carried out in Oyo State, located in the South-West region of Nigeria. This state is situated at a latitude of 8.00N and a longitude of 4.00E. Oyo State experiences a tropical climate characterized by distinct dry and wet seasons, along with relatively high humidity levels.

The rainy season typically spans from April to October, while the dry season occurs from November to March. Daily temperatures generally range from 25°C (77°F) to 35°C (95°F) (OYSG, 2022).

A significant portion of the population in Oyo State is engaged in agriculture, encompassing activities such as production, processing, and marketing. The climate in Oyo State is conducive to the cultivation of various staple crops, including yam, maize, soybean, cassava, and plantain, as well as cash crops like oil palm, cashew, and cocoa (Olawale et al., 2021).

SAMPLING TECHNIQUE

This study utilized primary data collected from arable crop farmers in Oyo State through a multi-stage sampling approach. The initial stage involved the purposive selection of six local government areas, representing 18.2% of regions where arable crop farming is predominant in Oyo State. The chosen local government areas included Ido, Iseyin, Lagelu, Ogbomosho North, Ibarapa East, and Oyo West, from which a list of farmers was compiled based on their associations.

In the second stage, 20 members were randomly selected from the generated lists in each local government area, resulting in a total of 120 respondents. The data collected were analyzed using descriptive statistics, the Foster-Greer & Thorbeck Model, and logit regression.

MODEL SPECIFICATION

Assessment of poverty line status. The Foster-Greer-Thorbecke (FGT) class of poverty measures, as outlined in 2010, was utilized to evaluate poverty status. The monthly expenditures of households were analyzed to ascertain their poverty classification.

The poverty line was established at two-thirds of the average monthly per capita expenditure across all households.

As noted by Adekoya (2014), the model can be expressed as follows:

According to (Adekoya, 2014) the model was given as:

$$P \frac{1}{N} \sum_{i=1}^{a} \left(\frac{z-yi}{z} \right) x$$

Where: Foster-Greer-Thorbecke index (0 < 1);

N = Total number of households;

Z = Poverty line;

q = Number of individuals classified as poor;

yi = Expenditure of the ith household;

$\alpha = 0$. This parameter yields the headcount ratio, representing the percentage of individuals living in poverty.

Olaniyan and Bankole (2005) indicated that the poverty line (z) signifies the minimum income level necessary to maintain an adequate standard of living within a specific society.

Determinants of poverty status among respondents.

The logit regression model was employed to analyze the factors influencing the poverty status of farmers.

According to Adepoju and Obayelu (2013), the model is articulated as follows:

Log (P/1-P) = F (Xi, B) + e

Where:

P = Probability that a farmer is classified as poor,

1-P = Probability that a farmer is not classified as poor,

B = Vector of estimated parameters

Xi = Independent variables considered, which include:

X1 = Age (in years)

X2 = Education (number of years in school)

X3 = Household size (number of individuals)

X4 = Secondary occupation (Farming = 1, Trading = 2, Artisan = 3, Others = 4)

X5 = Per capita expenditure of farmers (Naira per person)

X6 = Dummy variable indicating access to micro-credit (Accessible = 1, otherwise = 0)

X7 = Extension contacts (number of visits)

X8 = Annual farm income (Naira)

X9 = Farming experience (number of years in arable crop production)

X10 = Farm size (in hectares)

e = Error term

RESULTS AND DISCUSSIONS

Socioeconomic Characteristics of Respondents. Table 1 illustrates that 33.3% of the respondents fell within the age range of 31-40 years, while 26.7% were aged 41-50 years. Additionally, 23.3% were under 30 years, 11.7% were between 51-60 years, and only 5.0% were over 61 years.

With a mean age of 41, it can be inferred that the majority of respondents are middle-aged. This finding contrasts with the research conducted by Ayandiji and Adeniyi (2011), which suggested that the age group of 35-44 years is indicative of a robust supply of an agile workforce in agriculture. Furthermore, the data indicates that over half (59.2%) of the respondents had between 5 to 8 household members, 30.0% had 1 to 4 members, and 10.8% had more than 9 members. The mean household size of 5 suggests a relatively large family unit, which is advantageous for providing family labor rather than relying on hired help. However, this could also pose challenges regarding household maintenance. The average family size aligns with findings from Oladejo et al. (2011), which reported a similar mean household size.

TABLE 1: Socio economic characteristics of the respondents

Variables	Frequency	Percentage	Mean
	n = 120		
AGE			
≤ 30	28	23.3	
31-40	40	33.3	41
41-50	32	26.7	
51-60	14	11.7	
≥ 61	6	5.0	
SEX			
Male	78	65.0	
Female	42	35.0	
MARITAL STATUS			
Single	40	33.3	
Married	73	60.8	
Divorced	2	1.7	
Widow	5	4.2	
YEARS SPENT			
IN SCHOOL			
Primary	14	11.7	

Secondary	18	15.0	
Tertiary	82	68.3	
No Formal	6	5.0	
HOUSEHOLD			
SIZE			
1 – 4	36	30.0	6
5 – 8	71	59.2	
≥ 9	13	10.8	

Source: Field survey, 2024

Table 2 reveals that 47.5% of participants have between 1 to 5 years of experience, 26.7% possess over 11 years, and 25.8% fall within the 6 to 10-year experience range.

With an average experience of 5 years, this indicates that the respondents have substantial farming knowledge, which could positively influence their performance due to the wealth of expertise they have gained over the years.

Moreover, the data shows that a large majority (95.8%) of respondents manage between 1 to 3 hectares of farmland, while a mere 4.2% oversee more than 4 hectares.

The average farm size of 2 hectares suggests that farmers in this area primarily operate on a small scale, potentially leading to lower overall production levels. This limited land area may hinder their ability to generate significant income and other benefits.

Additionally, Table 2 indicates that 48.3% of respondents earn between #50,000 and #100,000, 44.2% earn between #100,001 and #150,000, and 7.5% earn between #150,001 and #200,000. The average income of 139,425 naira implies that the respondents in this region are relatively well-off.

Table 2: Enterprise characteristics of Arable crop production (n=120)

Variables	frequency	percentage	mean
Years of experience			
1-5	57	47.5	
6-10	31	25.8	
≥11	32	26.7	5
Farm size			
1-3	115	95.8	2
≥4	5	4.2	
Mode of land			
Ownership			
Purchased	62	51.7	
Gifted	18	15.0	
Inheritance	30	25.0	
Lease	7	5.8	
Others	3	2.5	
Monthly Income (N)			
50,000 – 100,000	58	48.3	
100,001 – 150,000	53	44.2	139,425
150,001 – 200,000	9	7.5	

Source: Field Survey, 2024

Table 3:

Factors Influencing Poverty Status Among Respondents

A Logit regression model was employed to assess the poverty status of rural farming households in Oyo State, Nigeria. The findings presented in Table 3 indicate that age, marital status, educational attainment, household size, per capita expenditure, farming experience, and farm size are significant factors influencing poverty in the region.

The coefficients for age, household size, and per capita expenditure were found to be positive, suggesting that an increase in any of these variables is likely to elevate the probability of poverty among households. Conversely, marital status, educational attainment, monthly income, farming experience, and farm size exhibited negative coefficients, indicating a significant reduction in poverty levels associated with these factors in the study area.

Table 3: Determinants of Poverty Status among the respondents

Variable	Coefficient	Standard error	Z	P>/Z/
Age	.34868***	0.8409476	-3.98	0.000
Sex	0219462	0.0439279	-0.50	0.617
Marital Status	-2.687081**	1.210235	-2.22	0.026
Years Spent in School	-0.3444733***	1.465471	0.24	0.014
Household size	.8456084***	0.2782008	3.04	0.002
Secondary Occupation	1.706885	1.238606	1.28	0.168
Per Capital expenditure	2.162841***	1.183733	1.83	0.068
Extension Services	.8359246	0.7215493	1.16	0.247
Annual Income	-0.3410562***	1.014307	-0.34	0.007
Farming experience	-2.424461***	0.7926128	3.06	0.002
Farm size	-0.8162869***	0.3938179	2.07	0.038
Constant	-15.24125	6.223338	-2.45	

Source: Field Survey, 2024

Significant level: (***1%, **5%)

Number of Observation= 120

Prob > chi^2 = 0.0000

R^2 = 0.3888

LR chi^2 = 15.7

Log Likelihood = -11.458

Farmers' Approaches to Alleviating Poverty

Table 4 presents the strategies employed by farmers to alleviate poverty in the study area. The findings indicate that a significant majority (85.0%) of respondents engaged in non-farm activities as alternative income sources to combat poverty.

This was closely followed by the adoption of organic farming practices, such as using manure instead of fertilizers or agro-chemicals (84.2%), selling farm produce directly from their homes or at nearby public spaces (77.5%), reducing food waste (77.5%), diversifying livelihoods (77.5%), hawking farm produce within their neighborhoods (72.5%), and purchasing cheaper food options (65.8%).

These results suggest that most respondents in the study area actively participated in non-farming activities as a means to generate additional income. This observation aligns with the findings of Ezehetal. (2019), who identified income as a key determinant of poverty status among ginger farmers in Southern Kaduna, Nigeria. Additionally, Bamiwuye and Adisa (2015) emphasized the significant role of community-based organizations in promoting rural development and enhancing livelihood diversification.

Table 4: Farmer's Strategies for Mitigating Poverty

Farmers' Strategies for Mitigating Poverty	Yes	No
Participation in non-farm activity as alternative source of income	102(85.0)	18(15.00
Adoption of Organic Framing such as Manure In place of fertilizer or Agro Chemicals	101 (84.2)	19 (15.8)
Reduction in food wastage	93 (77.5)	27 (22.5)
Livelihood diversification	93 (77.5)	27 (22.5)
Sell farm produce at the front of house or the nearest open public space.	93 (77.5)	27 (22.5)
Hawking of farm produce within Neigbourhood	87 (72.5)	33 (27.5)
Buying Cheaper food	79(65.8)	41(34.2)

Sources: Field Survey, 2024

Figures in parenthesis are in percentage

Constraints Affecting Arable Crop Production

Table 5 outlines the various constraints impacting arable crop production in the study area. The findings indicate that price fluctuation (mean = 1.56) is the most significant constraint, followed by high transportation costs (mean = 1.49) in second place. The third constraint identified is the infestation of diseases and pests (mean = 1.42), while inadequate credit facilities (mean = 1.41) rank fourth. This suggests that price volatility, elevated transportation expenses, and pest and disease infestations are the primary challenges hindering arable crop production in the region.

Table 5: Constraints Militating against arable crop production (n = 120)

Constraints	Very Severe	Severe	Not Severe	Mean	Rank
Price fluctuation	72 (60.0)	43 (35.8)	5 (4.2)	1.56	1st
High transportation cost	65 (54.2)	48 (40.0)	7 (5.8)	1.49	2nd
Infestation of disease and pest	56 (46.7)	58 (48.3)	6 (5.0)	1.42	3rd
Inadequate Credit Facilities	59 (49.2)	51 (42.5)	10 (8.3)	1.41	4th

Sources: Field Survey, 2024

CONCLUSION AND RECOMMENDATIONS

This study examined the factors influencing poverty status among arable crop farmers in Oyo State, Nigeria. Data were analyzed using descriptive statistics, including frequency, percentage, mean, and inferential statistics through Foster-Greer-Thorbecke and regression analysis. The results indicate that the majority of respondents are male, with an average age of 41 years, and are married with an average household size of members.

Based on the findings, it is recommended that farming households gain access to credit schemes, as this could enhance off-farm activities and generate additional income, thereby alleviating poverty. Furthermore, it is advised that farmers utilize improved agrochemicals, such as insecticides, herbicides, and pesticides, to effectively combat pests and diseases.

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