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DETERMINANTS OF POVERTY STATUS AMONG OIL PALM FARMERS IN OBOT-AKARA LOCAL GOVERNMENT AREA, AKWA IBOM STATE, NIGERIA

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Abstract
This study examined the determinants of poverty status among oil palm farmers in Obot-Akara Local Government Area, Akwa Ibom State, Nigeria. Specifically, it estimated the food and non-food expenditure of oil palm farmers, evaluated their poverty levels, and analyzed the factors influencing poverty. A multistage sampling procedure was used to select 97 oil palm farmers. Data were collected using structured questionnaire and were analyzed using descriptive statistics, Foster-Greer-Thorbecke (FGT) poverty measures, and logistic regression analysis. The results revealed that most farmers (54.6%) were male with a mean age of 42 years, while 77.3% of them were married and had an average household size of six persons. The mean monthly *per capita* expenditure was ₦20,770.09, with two-thirds (₦13,846.73) serving as the poverty line. The poverty headcount, gap, and severity were 0.298, 0.22, and 0.07 respectively, indicating 29.8% of the farmers live below the poverty line and a significant income shortfall among poor households. Household size, education, and farm size significantly influenced poverty. It was recommended that the government invest in adult education and agricultural extension programs to promote improved farming practices and enhance productivity among oil palm farmers.

Keywords: Poverty status, Oil palm farmers, Logistic regression, *per capita*, Akwa Ibom State

Introduction
Poverty remains a major developmental challenge in Nigeria, especially in rural communities where agriculture is the mainstay of livelihoods. According to the World Bank (2024), over 87 million Nigerians live on less than $2 per day, with rural farmers forming the majority of the poor population. Despite agriculture's significant contribution to the economy, many smallholder farmers, including oil palm farmers, still experience poverty due to low productivity, poor access to credit, and limited market opportunities.

Poverty situation at individual level includes the inability to sustain and house one self-sufficiently, inability to afford basic necessities to meet social and economic needs. In Nigeria, agriculture contributes significantly to the national economy, accounting for a substantial portion of employment and rural economic activity. Despite this, rural agricultural workers, including oil palm farmers, continue to experience high levels of poverty (Fakoyade and Akinrinola, 2024).

Oil palm (*Elaeis guineensis*) plays an important role in Nigeria's agricultural sector

as a major cash crop used in food, cosmetics, and industrial applications. Yet, oil palm farmers in Akwa Ibom State, particularly in Obot-Akara, continue to face poverty and livelihood insecurity.

Oil palm (*Elaeis guineensis*), is a critical crop in Nigeria's agricultural sector and has historically contributed significantly to the country's economy. Nigeria was once the leading global producer of palm oil, but due to inefficiencies, limited infrastructure, and lack of investment, the country has been overtaken by other nations such as Indonesia and Malaysia (Akpan *et al.,* 2024) Despite this decline in global ranking, oil palm remains a key source of income and livelihood for millions of smallholder farmers and processors in Nigeria, particularly in the southern regions where the crop thrives.

In rural areas such as Obot-Akara in Akwa Ibom State, oil palm farming provides both employment and sustenance for many households. The sector has the potential to reduce poverty levels, improve household incomes, and foster rural development. Despite the significant contribution of the oil palm industry to the Nigerian economy, many oil palm farmers in the country continue to live in poverty (Adeyeye *et al.,* 2017). Studies on Poverty have been carried out by Ajah and Edet (2018) on fluted pumpkin farmers in Onna LGA. Also, Bassey *et al*. (2022) carried out a study on Credit access and farm processing asset accumulation among oil Palm processors in Akwa Ibom State but there is a dearth of study on the poverty study of oil Palm

farmers in Obot Akara LGA in particular. It is based on the above premise that this study was carried out with the following objectives:

i. Estimate the food and non-food expenditures of oil palm farmers
ii. Evaluate the poverty status of the respondents
iii. **Analyze the factors influencing poverty among oil palm farmers**

Research Methodology

Study Area
This research work was carried out in Obot-Akara Local Government Area (LGA) is a local government area in Akwa Ibom State, Nigeria who's headquarter is located at Nto Edino. Obot Akara is located between latitude 5.27181, 5°16'0"N and longitude 7.65829, 7°36'0"E. Obot-Akara lies on the South South of Akwa Ibom State and bounded in the North by Abia State, in the West by Ikot Ekpene Local government area and in the East by Ikono Local Government Area. Obot-Akara local government area has a total land mass of 240.7 sq.km.

Obot-Akara has a population of approximately 147,000 people, according to National Population Commission (2006). Projection in 2022 with a 1.5% annual population change is 188,000 people and has a total of 17 communities. Obot-Akara is located within the oil palm forest belt of Nigeria and the area promises high dividends for agro-allied industries. More so, geologically confirmed sources have indicated the presence of some solid minerals deposit such as, diamond and sand for glass

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manufacturing, clay for ceramic products. The area also has a large deposit of crude oil. The major occupation of the people is farming, with crops like, palm tree, yam, cassava, etc. In terms of forest products, Obot- Akara LGA has a rich reserve of timber and other wood-based products such as plywood's, veneers, and swan timber. The local forests also provided non-timber forest products such as Bush mango, palm kernel oil, and raffia palm products such as baskets and mats.

Sampling Procedure

A list of 4000 registered oil Palm farmers was obtained from the Akwa Ibom State Agricultural Development Programme (AKADEP). This constituted the sample frame from which a sample of 98 farmers was randomly selected using the Taro Yamane formula for calculating sample size.

$$n = \frac{N}{1 + N(e)^2}$$

Where

n = the sample size

N = the finite population

e = margin of error

1= Unit

$$n = \frac{4000}{1 + 4000(0.1)^2}$$

$$n = 97$$

Data Collection

Data used for the study were obtained from a primary source through the administration of a structured questionnaire designed in line with the study objectives.

Data Analysis

Descriptive and inferential statistical statistics were used in the data analysis. Objective 1: Descriptive statistics used included percentages, Tables and means.

Objective 2: The Foster, Greer and Thorbecke (1984) class of weighted poverty measures were used to profile the poverty status of households.

Objective 3: Logistics regression analysis was used to analyze the determinants of poverty

Foster, Greer and Thorbecke (FGT) model

Foster, Greer and Thorbecke (1984) model which includes the head count ratio P_0, poverty gap ratio P_1, and poverty severity P_2 is expressed as

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

$$\alpha=0, P_0 = \frac{1}{n}\sum_{n=1}^{q}\left(\frac{z-y}{z}\right)^0 \quad \text{Poverty incidence}$$
or headcount (P_0) ……………………..(2)

$$\alpha=1, P_1 = \frac{1}{n}\sum_{n=1}^{q}\left(\frac{z-y}{z}\right)^1 \quad \text{Poverty gap or}$$
depth (P_1)……………………………(3)

$$\alpha=2, P_2 = \frac{1}{n}\sum_{n=1}^{q}\left(\frac{z-y}{z}\right)^2 \quad \text{Poverty severity}$$
(P_2)………………………….(4)

Where,

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z = Poverty line ($^2/_3$ mean *per capita* household expenditure)

y = daily *per capita* expenditure of the household

i = individual household

q = Number of poor households

n = Total number of the sample under consideration

α = Poverty aversion parameter (takes a value of 0, 1, 2, for headcount, gap, and severity)

Poverty line

This is the pre-determined and well-defined standard of income or value of consumption in the study. The line was based on the income of the households. Two third ($^2/_3$) of the mean *per capita* expenditure was used as the poverty line. The mean *per capita* household expenditure (MPCHE) was obtained by dividing the total of all the individual household *per capita* expenditure by the number of households surveyed.

Per capita household expenditure (PCHE)

$$= \frac{\text{total household expenditure}}{\text{household size}} \quad \dots\dots\dots\dots\dots\dots(5)$$

Mean *per capita* household expenditure (MPCHE)

$$= \frac{\text{total PCHE}}{\text{Total number of households}} \dots\dots\dots\dots\dots(6)$$

Poverty line = $^2/_3$ × MPCHE

$$\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots(7)$$

Logistic (Logit) regression model

The logistic (logit) probability function is given as

$$Pi = \frac{1}{1+e^{-zi}} = f(z_i) \dots\dots\dots\dots\dots\dots (8)$$

Where Pi is the probability that a household i (i = 1, 2 … n) will be poor. Index Z_i is a random variable which predicts the probability of a household being poor or non-poor. The probability P_i in equation 8 is further transformed to give equation 9.

$$Pi = \frac{e^{zi}}{1+e^{zi}} \dots\dots\dots\dots\dots\dots\dots\dots (9)$$

Therefore, for the *i*th observation, a household was

$$Z_i = \text{In } P_i / 1\text{-}Pi = \beta o + \Sigma\beta o \ X \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots.(10)$$

Therefore, ln (P/1-P) = 1, if the household is poor while ln (P/1-P) = 0, if non-poor.

Explicitly, the model is empirically estimated as

$$Y = \beta 0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \dots..\beta_{12} X_{11} + e \dots\dots\dots\dots\dots. (8)$$

Y = Poverty status of household (1= if poor, 0= non-poor)

$\beta 0$ = constant

$\beta_1 - \beta_{12}$ = coefficient of the independent variables

X_1 = Farmer's age (years)

X_2 = Sex (1 = male, 0 = female)

X_3 = Household size (number of persons)

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X_4 = Educational status (years of formal education)

X_5 = farm income (₦)

X_6 = farming experience (years)

X_7 = labor (man-day)

X_8 = farm size (hectares)

X_9 = membership to association (1= Yes and 0, = No)

X_{10} = access to credit (yes = 1, 0 = otherwise)

X_{11} = marital status (1=married 0=otherwise)

X_{12} = land ownership (1 = if owned, 0 = rented)

e = error term

Results and Discussion

Socioeconomic Characteristics of Oil Palm farmers
The result showed a mean age of 42 years. This implies that, most of the respondents within this age were economically in their active age. This result is in line with the findings of Edike and Kainga (2024) who pointed out that majority of the farmers fall within the age range of 41-50. In terms of sex, majority (54.6%) of the oil palm farmers were male. The result implies that oil palm farming in the area is male-dominated. This is so because oil palm farming is so tedious and requires energy and strength.
Result for marital status showed that 77.3% of the farmers were married, this implies that, oil palm farming in the study area was mostly carried out by married people with a mean household size of 6 persons. This confirms assertion of Olutomise and Ajibefun (2019) who said majority of farming household has

an average of 6-10 members and can serve as family labour for farm work. In terms of education, 39.2 % of the respondents had primary education. This finding agrees with Nwahia *et al.* (2021) who revealed the number of years spent in formal educational by farmers were 8 years.
Oil palm farmers had 1 – 10 years farming experience (67.0%). This goes to show that the managerial ability of these farmers is reasonably good, thus; having this long experience will promote specialization, improve knowledge, skills and aspirations. This is in line with Jatto *et al.* (2021) findings, that farmers were well experienced, hence they can identify possible problems and proffer solution. 67.0% of them cultivated less than 1 hectare of farm land, The mean farm size was 1.5 hectares. Accordingly, this group of farmers may not earn much considering their scale except they diversify. This align with Nwahia *et al.* (2021) which opined that the farming household were mainly small holder farmers who cultivated about 1.5 - 1.8 hectare.
Majority (69.1%) of oil palm farmers were members of association, this suggests that, the significant majority who are members of association, perhaps, understood the benefits attached to such association which may include access to credit. This is in line with Akpan *et al.* (2020) which result reveal that it would take poor oil palm farmers that are member of a social organization about 9.58% increment in their *per capita* household income to reach the poverty line and 4.69% to escape from the severe poverty. Majority (64.0%) have had access to credit at some point in time. This contradicts Jatto *et al.* (2021) who said majority of farmers had no

access to credit and had no other means of to access credit, purchase inputs in bulk which can reduce the total cost of operation. The mean annual income was 1.504329.90 million naira with 34% of them earning between 1 to 1.5 million. Only 7.3% of the total respondents had an annual income greater than 2 million naira. The possible reason for the high value is due to the fact that oil palm is a cash crop and most farmers earn their livelihood from it.

Food and Nonfood Expenditure
Table 2 showed the food and nonfood expenditure indicating that oil palm farmers spent more on nonfood than food with a 29.7% and 70.3% respectively. This contradicts the study done by Ajah and Edet (2018) who find out farmers spent more on food than nonfood. This is probably due to high cost of nonfood items like accommodation among others.

Household poverty status
Table 3 shows that the total household *per capita* expenditure of the sampled oil palm farmers was ₦2,014,699.40, with a mean household *per capita* expenditure of ₦20,770.09. The poverty line, defined as two-thirds of the mean *per capita* expenditure, was ₦13,846.73. Hence, any household with *per capita* monthly expenditure equal to or above ₦13,846.73 was classified as non-poor, while those below ₦13,846.73 were considered poor.

The incidence of poverty (headcount index) was 0.298, meaning 29.8% of the respondents lived below the poverty line. The poverty gap was 0.070, indicating that 7.0% is the extent to which the poor fall below the poverty line, while the poverty severity index stood at 0.022, showing that 2.2% represents the depth of poverty and inequality among the poor.

Based on these results, ₦969.27 (that is, $0.070 \times ₦13,846.73$) is required to bring an average poor person up to the poverty line. Given that 29.8% of the households are poor, the total monthly amount needed to lift all poor households out of poverty is ₦412,632.55, calculated as 29.8% × ₦13,846.73. Therefore, it would take ₦412,632.55 to bring all poor households to the poverty line, and ₦969.27 to lift a single individual out of poverty. This result is similar to those of Ike and Uzokwe (2015).

Determinants of poverty
The regression model explaining poverty determinants had a pseudo-R^2 of 0.304, showing a moderate fit. The significant factors influencing poverty included household size, farming experience, farm size, access to credit, and educational level -- all negatively related to poverty, meaning they reduce its likelihood.

Household size was found to have a negative and significant coefficient at 1% level. The household size coefficient of -.362 implies that for every unit increase in household size, the likelihood of becoming poor reduces by 36.25. This result is consistent with the findings of Dia *et al.* (2023).

Farming experience was found to be negative and significant at 1%. This means that as the years spent in farming increases, there is less likelihood of becoming poor. With a coefficient of -.158 it means that an increase in years of farming by one year reduces the

probability of being poor by 15.8%. This is consistent with Akpan *et al.* (2020).

More so, educational level was found to have a negative and significant effect on the poverty status of oil farmers with a coefficient of -.097 means that a unit increase in years spent in schooling all things being equal, reduces the likelihood of being poor by 9.7%. This is in line with Akpan *et al.,* (2020) who found more educated oil palm farmers have a far more livelihood compared to less educated ones.

Access to credit was found to be negative and significant at 5% level. This means that as the farmer's access to credit increases by one unit, there is less likelihood of being poor. With a coefficient of -.994 it means an increase in credit will assists the farm households in the purchase of farm inputs which ultimately increase productivity by 99% and increase output which would therefore translate to more income. This is consistent with Dia *et al.* (2023) who highlighted that when the farmers have access to credit facilities it will aid their households to escape poverty.

Farm size was also negative and significant at 5%. This means that as the farm size increases by one unit (one hectare), there is less likelihood of becoming poor, since increase in farm size will result in increase in input and ultimately increase in farm income and well-being. With a marginal effect of -3.441 it means that an increase in farm size by one hectare reduces the probability of being poor by 344%. This is in line with the findings of Nwahia *et al.* (2021) who found that households with larger farm holdings were expected to generate more income, which would enhance their consumption

level/income and subsequently improve their household poverty status

Conclusion

The study showed that the mean monthly expenditure on non-food items was higher than mean monthly expenditure on food items. It also showed that 29.8% of the sample population are living in poverty and concludes that variables such as; household size, farming experience, farm size, access to credit and education were the major determinants of poverty status among oil palm farmers.

Recommendations

The study recommends that:

i. All sub-sector of the oil palm sector should promote cooperative farming models where small-scale farmers can merge their land and resources. This would allow them to operate on larger scale, potentially increasing their efficiency and income beyond individual.

ii. To reduce the vulnerability of oil palm farmers, the Akwa Ibom government should increase access to credit and financial literacy.

iii. More so, to reduce the mean monthly expenditure on non-food items it is recommended that government should provide social welfare schemes such as free education, low-cost housing and affordable

health care for rural household's, oil palm farmers.

iv. Given the limited literacy, the government should invest in adult education and extension services tailored to teach

modern farming techniques, and business management, making farmers more receptive to innovation and can increase production.

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Table 1: Socioeconomic Characteristics of Oil Palm farmers

Age	Frequency	Percentage (%)
20 -29	11	11.3
30 -39	28	28.9
40-49	35	36.0
50 -59	18	18.6
60 -69	5	5.2
Total	**97**	**100**
Mean		43.8
Gender		
Male	53	54.6
Female	44	45.5
Total	**97**	**100**
Marital Status		
Single	15	15.5
Married	75	77.3
Divorced	7	7.2
Total	**97**	**100**
Household Size		
1 -5	41	42.3
6-10	49	50.5
11- 15	7	7.2
Total	97	100
Mean		6

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Educational level

No formal education	8	8.2
Primary education	38	39.2
Secondary	34	35.1
Tertiary	17	17.5
Total	**97**	**100**

Farming Experience

1-10	65	67.0
11-20	17	17.5
21-30	11	11.3
31-40	4	4.2
Total	**97**	**100**
Mean		12

Farm Size

<1 hectare	65	67.0
1-2 hectares	22	23.0
3-4 hectares	10	10.0
Total	**97**	**100**
Mean		1.5 hectares

Association

Yes	67	69.1
No	30	30.9
Total	97	100

Access to Credit

Yes	62	64.0
No	35	36.0
Total	**97**	**100**

Annual Farm Income (N)

<100,000		
100,001 - 500,000	22	22.6
500,001 - 1,000,000	25	25.8
1,000,001 - 1,500,000	33	34.0
1,500,001 – 2, 000,000	10	10.3
>2,000,000	7	7.3
Total	**97**	**100**
Mean		N 1,504,329.90

Source: computed from Field survey data, 2025.

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Table 2: Household monthly expenditure among oil palm farmers

Item	Mean monthly expenditure (₦)	% of total expenditure
Food	22,473.58	29.7
Non-food	55, 097.25	70.3
Total	75,570.83	100

Source: computed from field survey data, 2025.

Table 3: Poverty status of oil palm farmers in Obot Akara Local Government Area

Area	Poverty Estimate		
Obot-Akara	P_0	P_1	P_2
	0.298	0.070	0.022

Source: computed from field survey data, 2025.
(P_0 =Head count, P_1= Poverty gap, P_2= Poverty severity)

Table 4: Estimated Logistic regression of factors influencing poverty among oil palm farmers in Obot Akara Local Government Area

Variable	Coef.	Std.Err	sig.	EXP(B)
Age X_1	0.50	0.49	.311	1.051
Sex X_2	-.744	.605	.218	.475
Hhsz X_3	- .362	.143	.011***	1.436
Edu.X_4	-.097	.081	.030**	.908
Income X_5	.000	.000	.559	1.000
Farmexp X_6	-.158	.056	.005***	.854
Labour X_7	-.194	.664	.770	.823
Farmsz X_8	-3.441	2.037	.091*	31.207
Masso X_9	-.901	.582	.122	.406
Accredit X_{10}	-.994	.203	.038**	1.225
Marstatus X_{11}	-.637	.786	.417	.529
Landown X_{12}	.887	.739	.230	2.428
Constant	-1.875	1.888	.321	.153

Note: *** Significant at 1%, **Significant at 5% and * Significant at 10%
Number of observations = 97

LR Chi2 (12)	= 22.71
Prob> Chi2	= 0.0303
Pseudo R2	= 0.304
Log Likelihood	= 90.060

Source: Computed from field survey data 2025.