

## **DRIVERS OF POVERTY IN OIL PRODUCING COMMUNITIES OF SOUTHERN NIGERIA**

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### **ABSTRACT**

The oil-producing communities generate more than 80 percent of Nigeria earnings from crude oil. Unfortunately, the oil has not shown enough prosperity in the oil-producing communities as the standard of living of the people is worsening by the day with little attention to the provision of infrastructure. Besides, there is evidence of widespread and abject poverty among the inhabitants of the oil-producing communities. An inclusive policy to harness the potentials of such communities requires the knowledge of the factors influencing their poverty levels. This study estimated the factors influencing the poverty of inhabitants in the oil-producing communities of southern Nigeria. Using multistage sampling procedure, 120 representative households were chosen and information was obtained with the help of structured questionnaire. In order to find what determines poverty, an altered reversal model comprising 15 regressors was used in the analysis. The results revealed that most critical factors influencing poverty in the communities were dependency ratio, farm size, experience in farming, farm income, level of knowledge gained, the gateway to extended services, modern farming inputs, and having the opportunity a to health facility. Increasing the size of cultivable hectarge either through land consolidation or expansion of existing farmland and improving the educational level of inhabitants of the oil communities are rational policy decisions that could reduce poverty and improve their quality of life.

**Keywords:** Quality of life, poverty, determinants, Nigeria

## 1. INTRODUCTION

Song, (2016) cited in Nanok et al., (2017) postulate that oil exploration has been in existence for long all over the world. It can also be viewed as a promoter of wellbeing which increases the creation of jobs. A greater population of Nigeria is rural, and agriculture is the crutch of the livelihood of the people (Etim & Udoh, 2013). Although poverty is a cause for worry in some parts of the cities, it revealed the deteriorating movement of city well-being indicators (World Bank 1997), which is the fact that poverty in rural areas requires special attention as it is increasing speedily. (Etim & Edet 2014).

Nigeria is considered as one the countries, gifted with natural resources but regarding socioeconomic and infrastructural development, it is one of the deprived States around the globe. Circumstances regarding poverty in Nigeria is quite a serious canker, given the quantum of richly endowed natural and human resources with tremendous oil and gas reserves in the country.

According to the World Bank (1996), the socio-economic condition in this African State is an irony because the country is endowed yet the people are underprivileged. Nigeria has large arable land, forest reserves, and a conducive climatic condition that favors and supports agricultural production. The country is rich in mineral resources and is the largest producer of tin ore. bitumen, steel, iron, coal, marble, tantalite, columbite, uranium, and kaolin. The country is rich in biodiversity of flora and fauna and a suitable reserve for progress and prosperity of medicinal companies and source of materials required for the production of genetically modified food crops (CBN 2015).

Having a populace of 192 million, Nigeria is one of the most populated countries not only in the African continent, but it ranks 7<sup>th</sup> in the list of countries by population globally (United Nations, 2017). The country is presently mostly populated in Africa, it also forms part of ten most densely inhabited countries around the globe (Population Reference Bureau, 2015). This large populace is an added advantage for the expansion of the domestic market which will likely increase the economic potentials of the country.

This natural and human asset has the potential to optimize development and prudent management of the economy, should bring about job creation, high per capita income, poverty reduction, and an overall improvement in wellbeing. Unfortunately, in spite of this enormous wealth of the nation, the country has been engulfed in abject human and infrastructural poverty

and economic disequilibrium. According to Ozughalu (2010), Nigeria in current times has been in fear, insecurity and rages.

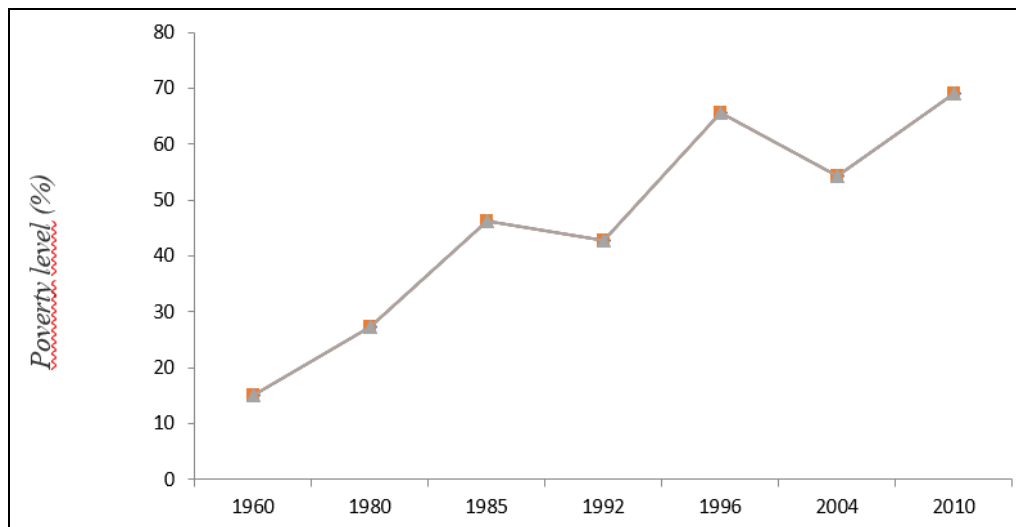


Figure 1: Trend in Nigeria's poverty level 1960-2010

Source: Federal Office of statistics 1999, National Bureau of Statistics 2012a & 2012b

Nigerian economy is oil-dependent where the sector contributes about 95 percent export revenues and 32 percent gross domestic product. These oil and gas reserves are embedded and concentrated in the Delta State. This area is the backbone of Nigerian economy due to its relatively good oil and gas reserves. But unfortunately, despite the fact that the region is the major driver of Nigeria's economy, it is characterized by marginalization, widespread and abject poverty, underdevelopment, massive infrastructural poverty, and low quality of life.

Ebegbulen (2013) noted that the region is the most impoverished in the country, largely, due to the ecologically unfriendly exploitation of the indigenous people of the region of their right to these natural resources. The oil in the Niger delta has not prospered the oil-producing communities in any way and the standard of life of the people is worsening by the day with little attention to the provision of basic infrastructure in the region. Though agriculture in Nigeria has greatly improved in the past years because of the advent of technology (Etim & Edet, 2014), most inhabitants of oil-producing communities who are predominantly subsistence farmers are still struggling to provide sufficient food for the households.

Edet and Etim (2014) reported that people in oil-producing communities rely on farming for survival and often eke out a subsistence living. But despite their involvement in farming activities, they often experience food deficit, low output, and income. According to Etim (2007) "The poor quality life manifests in poverty, for the households to enhance income levels and to meet family food requirements, their poverty level has to be curbed.

To formulate policy strategies aimed at curbing poverty and enhancing the standard of living of inhabitants of oil-producing communities, knowing the specific factors determining poverty is required. Determining the factors responsible for poverty among households is required. To fill this lacuna, experimental research was however embarked on to estimate the impact of factors that influence deficiency in oil-producing communities of southern Nigeria.

## **2. RESEARCH METHODOLOGY**

### **2.1. Study Area**

Akwa Ibom State, Nigeria was the area of study. The state can be found at 4<sup>0</sup>32' and 5<sup>0</sup>32' Arctic of the Northern hemisphere and 7<sup>0</sup>28' and 8<sup>0</sup>25' East of the Greenwich Meridian. It has an over-all land of 7,246km<sup>2</sup>. Its population is 3.9 million estimated by the (National Population Commission, 2006). The area of study is around the tropical rainforest region, and has two different seasons namely: the rainy and short dry season. The annual rainfall ranges from 2000-3000mm per annum and major occupations of the residents of oil-producing publics are farming and fishing (Etim & Udoh, 2013). The main profession of the people living in the community is farming and fishing.

### **2.2. Data Source and Method of Data Collection**

The main information used by the study was surveying 120 households. Data were collected from farming households head for a period of 6 months using a survey. Head of the households provided the information needed for the study. Primary data included information on household condition of living, income, demographic, socio-economic characteristics of household head, farm-related variables, and environmental variables.

### **2.3. Sampling Procedure**

The study made use of Multistage specimen method to select the illustrative households. Stage one was the purposive selection of 3 oil-producing local government areas due to their typical abundance in crude oil. A random sampling of 20 villages for each oil-producing local government area to make 60, was utilized for the second stage. For the third stage it involved the sampling of 2 households per village making it a total of 120 households.

### **2.4. Model Specification**

The Tobit regression using a mixture of continuous and dependent variables was considered to determine the possibility of being poor, influencing the descriptive variables. The model is estimated following (Tobin, 1958).

$$\begin{aligned}
 q_i &= P_i = X_i\beta + e_i \text{ if } P_i > P_i^* \\
 &= 0 = X_i\beta + e_i \text{ if } P_i \leq P_i^* \\
 i &= 1, 2, \dots, 120 \qquad (1)
 \end{aligned}$$

Where  $q_i$  is the dependent variable. It is continuous when the households are poor and discrete when they are not.  $P_i$  is the poverty intensity illustrated by

$(Z - Y_i/\sqrt{Z})$ , whilst  $P_i^*$  is the poverty depth when the poverty line ( $z$ ) equals the expenditure per adult equivalent.  $X_i$  is a vector representing the predictor variable,  $\beta$  is a vector of unknown coefficient and  $e_i$  is the error term.

The predictor variables are:

- $X_1$  = Gender of the family head (D = 1 if female, 0 if otherwise)
- $X_2$  = Age of family head
- $X_3$  = Marital status of family head (D = 1 if married, 0 if otherwise)
- $X_4$  = Dependency ratio (represented by the number of dependent members of households younger than 12 years or older than 70 years old divided by the number between 12 and 70 years)
- $X_5$  = Tertiary Education (measured by years spent in a tertiary institution)
- $X_6$  = Secondary education (measured by years spent in secondary school)
- $X_7$  = Primary Education (measured as the number of years spent in primary school)
- $X_8$  = Membership of family head in social organization (D = 1 if yes, 0 if otherwise)
- $X_9$  = Farming(experience)
- $X_{10}$  = Farm size in hectares
- $X_{11}$  = Farm income in Naira
- $X_{12}$  = Labour employed in all farm enterprises in man-days
- $X_{13}$  = Access to Extension Service (D = 1 if yes, 0 if otherwise)
- $X_{14}$  = Access to advanced farming input (D = 1 if yes, 0 if otherwise)
- $X_{15}$  = Walking time to the nearest health facility in minutes

The empirical model estimated was considered in drawing economic policy implications for poverty curbing strategies for households in oil-producing communities of Akwa Ibom State, Nigeria. Following a Tobit Framework as suggested by McDonald and Moffit (1980) and adapted by Etim (2007), the effect of changes in the independent variables ( $X_i$ ) on poverty was obtained for families in the area of study. Let the expectation of the dependent variables be represented as  $E(q_i)$ , the expectation of the dependent variable conditional on the farm households being below the limit (zero poverty depth) be  $E(q_i^*)$ , and the probability of poverty be given as  $F(z)$  where  $z$  is  $X\beta/\sigma$ . Therefore, the variables will be related as shown as

$$E(q_i) = F(z) E(q_i^*) \quad (2)$$

Changing the predictor variables, the impact of poverty in some homes was broken down into two parts by differentiating equation (2) as shown as

$$\frac{\delta E(q_i)}{\delta X_i} = F(z) \left[ \frac{\delta E(q_i^*)}{\delta X_i} \right] + z E(q_i^*) \left[ \frac{\delta F(z)}{\delta X_i} \right]$$

Multiplying through by  $X_i/E(q_i)$ , equation (3) could be turned into elasticity forms as shown below:

$$\frac{\frac{\delta E(q_i)}{\delta X_i} \cdot X_i}{E(q_i)} = F(z) \cdot \frac{\frac{\delta E(q_i^*)}{\delta X_i} \cdot X_i}{E(q_i^*)} + z E(q_i^*) \cdot \frac{\frac{\delta F(z)}{\delta X_i} \cdot X_i}{F(z)} \quad (4)$$

Considering equation (4) and equation (2) we have

$$\frac{\frac{\delta E(q_i)}{\delta X_i} \cdot X_i}{E(q_i)} = F(z) \frac{\frac{\delta E(q_i^*)}{\delta X_i} \cdot X_i}{E(q_i^*)} + z \frac{\frac{\delta F(z)}{\delta X_i} \cdot X_i}{F(z)} \quad (5)$$

Equation (5) projects that elasticity of a change in any level of the explanatory variable consist

- (i) The change in poverty intensity elasticity for poor households.
- (ii) The change in probability of being in poverty's elasticity. These elasticities were therefore computed from equation (5) above.

### 3. RESULTS AND DISCUSSIONS

#### 3.1. Determinants of Poverty in Households of Oil Producing Communities

In estimating the determinants of poverty in oil-producing communities, the study considered a censored regression model estimation comprising of 15 regressors. The result shows that sigma ( $\sigma$ ) 0.3266 with a z-statistics of 2.6770 is statistically significant ( $p < 0.01$ ). This is indicative that the estimated model is well fit to the data. The intercept of 0.4725 represents the depth of poverty in oil communities.

The coefficient of the dependency ratio is 0.3924, it implies that when the number of dependents increase in units, the intensity of poverty will increase by 39.34 percent. This is attributable to the fact that a majority of the dependents who are mainly children contribute a smaller amount to their family's income whilst the family spends a reasonable amount of money on training then on craftsmanship and on their education. The result is in conformity with earlier and similar empirical studies by Lipton (1983); House (1989); World Bank (1991); Lanjouw and Ravallion (1994)" whose findings showed that a higher level of poverty was encountered in households, having large numbers.

Tertiary training has a coefficient of -0.2229 implying that the intensity of poverty diminishes by 22.29 percent for those in households whose heads have tertiary education to become 0.2496. Families whose leaders had no form of literacy have a poverty strength/depth of 0.4725. It can be attributed to the fact that well learned leaders of homes have the propensity to adopt advanced agricultural methods quicker than the uneducated ones. This increases the efficiency and income of the educated leaders contributing to their welfare. These results agree with previous experimental discoveries by Ahmed et al (2007). They established that to improve the quality of livelihood and poverty reduction, then education is an important factor.

Secondary education had a coefficient of -0.3102 implying that household heads with secondary education are likely to attain a lesser poverty rate of 0.1623 relative to 0.4725 for these whose heads lack formal education. This result resonates with the results of Etim and Edet (2014). Primary education has a coefficient of -0.2779. This poverty will be reduced by 0.1946 as against 0.4725 for members whose heads have no form of formal education. This finding corroborates with earlier results by Schubert (1994) and World Bank (1996).

The coefficient of regression for farming experience of the family head is 0.3665 and is positively important ( $p < 0.10$ ) signifying that an annual rise in agricultural skills of the family head will result in 0.3665-unit increment in the depth of poverty. This could be attributed to the fact as farming experience increase, the age of these households also increases. And since agricultural labor involves a lot of drudgeries, the strength available for such work tends to

decrease as the experience in farming increases. This results in the reduction of farm holdings with a consequent decrease in farm proceeds as well as poverty rise. This result supports the fact that the extent of a farm would be decreased as farming experience upsurges due to the scarcity of labor. Finding as similar to earlier results of Etim and Patrick (2010).

Farm size's coefficient is -0.4010 with significance ( $p < 0.05$ ). This suggests that a hectare increase in farm size reduces the rate of poverty by 0.4010. Since the quantity of farm yield is associated with the cultivation land, a growth in yield attributes to a rise in income with consequent improvement in quality of life. Ahmed et al (2007) reported similar empirical results.

The variable farm revenue has a number of 0.3880 and is negatively noteworthy ( $p < 0.01$ ). The result is an indication that if a farm revenue rises, poverty level reduces by 0.3880. Farm households in oil communities are likely to generate more income and improve their quality of life since the level of increment of an income, accruable to them from farming activities increases the volume of more consumption and re-invest in farming and other economic activities. The results of the study were corroborated by Omonona (2001). In his empirical study, it is revealed that the poverty situation in the Kogi State is reduced by farm income.

The variable extension contacts with an elasticity of 0.3031 are negatively signed as expected and statistically significant ( $p < 0.10$ ). This result signifies that poverty level will be reduced by 30.31 percent to give 0.1694 for homes that have entree to extension services as against 0.4725 for households with no access to technical assistance from extension personnel. In a similar study that subsist findings of the study Apata, Igbalajobi & Awoniyl (2010) revealed that extension services improve the nature of quality of farming of farmers in South-western, Nigeria, increasing their farm yield and enhancing their quality of life.

The variable modern farming input has a coefficient – 0.2856 and is significant ( $p < 0.01$ ). This suggests that the rate of poverty will be decreased by 28.56 percent to become 0.1869 for families having access to modern farming inputs. The level of poverty for families with no access to modern farming input is 0.4725. This may be attributed to the use of improved farming inputs which tends to bring about yield increase which raises farm income and improvement in the quality of life. Similarly, Apata, Igbalajobi & Awoniyl (2010) determined the determinant of poverty in rural Nigeria. They found that access to credit and advanced farming input enhances farm harvest and reduces poverty in Rural Nigeria.



The mobile period nearer to a health facility is 0.3315, which is positively important ( $p < 0.01$ ) and it implies that the level of poverty will be increased by 0.3315 unit if there is minutes increase in the walking time to the nearest health facility. Households in oil-producing communities living closer to health facilities have a higher propensity to access medical services more readily thus a better quality of life than those living farther from health facilities who may be incapacitated due to either the deplorable nature of roads or high transportation cost. This result is synonymous with previous discoveries by Ahmed et al (2007).

Table 1: Maximum likelihood estimates of the determinants of poverty in oil-producing communities

Variables	Coefficient	Standard Error	Z-value
<b>Individual Characteristics</b>			
Sex of Household head ( $X_1$ )	0.0341	0.0211	1.6161
Age of Household head ( $X_2$ )	0.0592	0.311	0.1904
Marital status of the Household head ( $X_3$ )	0.0617	0.4211	0.1465
Dependency ratio ( $X_4$ )	0.3924	0.1544	2.5415**
Tertiary Education ( $X_5$ )	-0.2229	0.0986	-2.261**
Secondary Education ( $X_6$ )	-0.3102	0.1001	-
			3.0989***
Primary Education ( $X_7$ )	-0.2779	0.0576	-
			4.8247***
Membership of social organization ( $X_8$ )	0.2322	0.5620	0.4132
<b>Farm Characteristics</b>			
Farm Size ( $X_9$ )	-0.4010	0.1869	-2.1455**
Farming Experience ( $X_{10}$ )	0.3665	0.2103	1.7427*
Farm income ( $X_{11}$ )	0.3880	0.1056	3.6742***
Labour employed ( $X_{12}$ )	0.0489	0.0351	1.3924
Access to Extension Services ( $X_{12}$ )	0.3031	0.1664	1.8215***
Access to modern farming ( $X_{13}$ )	-0.2856	0.0857	3.3326***
<b>Community Characteristics</b>			
Walking time to nearest health facility ( $X_{14}$ )	0.3315	0.1282	2.5858***
Walking time to nearest market ( $X_{16}$ )	0.2258	0.1978	1.1416
Constant	0.4725	0.2011	2.3496**
Sigma ( $\sigma$ )	0.3266	0.1220	2.6770***

Source: Tobit Regression Result, 2018

\*\*\*, \*\*, \* denote significance at 1%, 5% and 10%

### 3.2. The elasticity of Poverty in Oil Producing Communities

The response of the household's poverty to changes in factors affecting it is better expressed when expressed in percentage instead of the unit of measurements of the variable. Following the Tobit framework, the outcome of variation in the predictor variables ( $X_i$ ) on poverty was obtained as stated in the methodology. The coefficient of the elasticities are shown in table 2.

The scarcity resistance with regards to the dependency ratio is 0.1210 implying that a 100 percent increase in dependency leads to a 12.10 percent increase in the probability of poverty (inelastic). This suggests that a 100 percent increase in the dependency ratio would increase the intensity of poverty by 0.0142. The analysis reveals that an increase in the dependency ratio increases the probability of poverty than its intensity.

The elasticity of being poor due to an increase in household heads' years in agricultural production is 0.2115 (inelastic) implying that for a 100 percent increase in experience in farming, poverty depth probability rises by 21.15 percent. Similarly, a 100 percent rise in experience of farming results in a 3.30 percent (inelastic) increment in the intensity of poverty. It means that as years of experience in farming increases, the intensity of being poor will be less than the probability of being poor.

The elasticity of the probability of being poor due to an increase in size of farm is -0.0516 and is inelastic. The result means that for a 100 percent increase in farm size, the probability of being poor is reduced by 5.16 percent. The elasticity of the depth of being poor for households with respect to farm size is -0.0317. This implies that the depth of poverty can be reduced by 3.17 percent given that the size of the farm rises to 100 percent. Both elasticity coefficients show that they are inelastic to increase in farm size but overall, increasing farm size results in a higher percentage reduction in the probability of being poor than its intensity.

The elasticity coefficient of the probability of poverty because of an increase in walking time to the nearest health facility is 0.0410. This implies that every 100 percent increase in the walking time taken to reach the nearest health facility will result in a 4.10 percent increase in the probability of poverty among households. Conversely, the intensity of poverty has an elasticity coefficient of 0.0128 due to an increase in walking time taken to reach the nearest health facility. This result implies that if the walking time to reach the nearest health facility is increased by 100 percent, the intensity of being poor will be increased by 1.28 percent. Though the coefficients are inelastic, the probability of being poor responded more to increases in walking time taken to reach the nearest health facility.

Table 2: Coefficient of Elasticities of Probability and intensity of Poverty in Oil Producing Communities

Variables	Elasticities of		
	Probability of poverty	Intensity of Poverty	Elasticity
Dependency Ratio	0.1210	0.0142	0.1352
Farming Experience	0.2115	0.0330	0.2445
Farm Income	-0.1957	-0.3166	-0.5123
Farm size	-0.0516	-0.0317	-0.0833
Walking time to nearest health facility	0.0410	0.0128	0.0538

Source: Derived from the Result of Tobit Regression, 2018

#### 4. CONCLUSION

The study estimated factors influencing the poverty of households in societies of Akwa Ibom State, who produced oil in Southern Nigeria. The model was used to analyze the data. Results indicated that the major drivers of poverty and low quality of life in the oil-producing communities were dependency ratio, education level, farm size, years of experience in farming, access to extension services, farm income, average walking time of the nearest health facility, and access to modern farming inputs. Results further showed that increasing the amount of dependent household members was likely to raise the shortage levels of households.

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