

## Household Endowment and Poverty Reduction

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**ABSTRACT** Due to the prevalence of poverty in Sub-Saharan African countries and Nigeria in particular, this paper seeks to investigate the influence of household endowments in reducing poverty among rural households in Ijebu-Jesa, Osun State. Using a multistage sampling approach, data was collected from 120 households and analysed using frequencies and percentages, Foster Greer and Thorbecke (FGT) index and logistic regression analysis. The result shows that the incidence of poverty among rural households is slightly pervasive (48.3%). It is also realised that gender, membership of the cooperative society, access to mobile, income, and household size are significant variables to explain the effect of the household endowment on poverty reduction. It is therefore recommended that the government should introduce policies aimed at facilitating the smooth establishment of cooperative associations in the study area and that tariffs on telecommunication should be subsidised to encourage more people to access and utilise mobile phones.

### INTRODUCTION

Poverty reduction is acknowledged to be crucial to man's wellbeing and a sign of the ability of a man to satisfying the basic needs required for growth and development (Ijaiya et al. 2011). This conception is currently the order of the day in all developmental strategies traced to the United Nations, which is a major player in eradicating poverty. Just as many countries prioritised poverty reduction under the Millennium Development Goals of the United Nations (MDGs), they are equally putting it on top of their program under the Sustainable Development Goals (SDGs). These goals have put all nations on their toes to providing ways aimed at ending hunger, achieving food security via improved nutrition, promotion of sustainable agriculture and removing households out of poverty on or before the year 2030 (FAO 2017).

Within the past two decades, numerous studies have been conducted on poverty in Nigeria. These studies have examined the poverty profile of the country, but only a few have examined the role of specific household endowments in determining poverty status. According to Groottaert (1997), the contribution of the household endowments towards eliminating poverty can-

not be overemphasised as household asset possession enhances agricultural productivity (Olaniyan and Bankole 2005). Looking from a broader perspective, endowments in the household determine the type of livelihood strategies the farmers adopt. The health condition of the household members defines their capacity to participate in profitable nonfarm activities as well as having more proceeds from the farm (Seng 2015). The household endowment also influences farmers' technological adoptions, as the experiences of other farmers in their social circle are essential for trust, learning, and collective action (Mwangi and Kariuki 2015). The size and quality of land owned by a household affect the production of marketable surplus, and having animals that can effectively work on the farm conserves time and energy (Thornton 2010). Besides, Aluko (2012) opined that the deteriorating standard of living could be traced to lack of endowments such as employment, education, healthcare facilities, good food, potable water, proper sanitation system, poor infrastructural development, and inadequate access to land and capital or credit. Endowments determine what is done, how it has been done, and the ability of the household to cope with disaster, illness, job loss, and other forms of stress associated with agricultural production (Zhang et al. 2012). Furthermore, the household endowment is capable of overturning opportunities for members of the

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household while it may enhance for others. Therefore, safeguarding an excellent and sustainable quality of life depends on the proper distribution of rural household assets.

The rural households are characterised by inadequate access to agricultural inputs like land, fertiliser, credit facilities and extension services. Likewise, the lack of adequate security, education, storage, and processing facilities were acknowledged as part of the characteristics of a rural household in Africa and Sub-Sahara Africa (FAO 2016). Nonetheless, the role played by rural dwellers in agricultural production is of great importance to the economy of the nation despite the challenges faced by them (Oyakhilomen and Zibah 2014). Apart from feeding the teeming population by growing and rearing of animals, the rural inhabitants engaged in farming are also responsible for the supply of raw materials needed for the growth and development of industries. Likewise, the research on the structure and growth of Nigeria Gross Domestic Product by Anyanwu et al. (2013) affirmed that agriculture is one of the influential and most important determinants of Nigeria's GDP since 1960. In spite of the enormous influences of the rural farming households on food production and distribution, agricultural program inconsistency, poor implementation of agricultural structures, lack of market access for goods and services produced are the challenges faced by them in mitigating the effect poverty (Khapayi and Celliers 2016). Furthermore, non-participation of the rural dwellers in programs aimed at alleviating poverty, poor targeting mechanisms and failure to focus directly on the poor rural households have been acknowledged as reasons why poverty reduction related programs have not strived well in Nigeria (Taiwo and Agwu 2016).

In view of the prevailing economic situation of present-day society, the household is preferred as the basic unit for analysing poverty rather than embracing the individual (Vijaya et al. 2014). The current poverty situation of diverse rural households observed quantitatively and qualitatively confirms the rising incidence and depth of poverty level in Nigeria, most especially in the north-eastern and north-western geopolitical regions of the country (Dauda 2017). The report released by the National Bureau of Statistics (2012) declared that the fraction of

people living in poverty rose in the year 1980 from 28.2 percent to 46.3 percent. In the year 1985, the figure was observed to drop a little bit in 1992 to 42.7 percent and then later increased to 65.0 percent in the year 1996 due to poor economic development, unsuitable macroeconomic strategies, and shortage in the agricultural workforce (Olowa 2012). In 2010, households affected by poverty in Nigeria was estimated at 69.0 percent, which suggests that more than 113 million people live below the poverty line (NBS 2012). Although Nigeria's GDP improved from USD 61.1 billion to USD 405 billion, attaining an all-time record of USD 569 billion in the year 2014, so far, from 1981 to 2016 the country has added over 90 million people to poverty (Olayinka 2019). With this current condition, the number of people believed to be living in an extreme poverty situation is estimated to be approximately fifty percent of the entire country's population (World Poverty Clock 2019). This critical state has also positioned Nigeria as the nation with the highest rate of extreme poverty in the world (Kazeem 2018).

The prevalence of poverty and poor economic situation of the household can be traced to reasons workers, and organised labour agitates for salary increment in both the public and private sectors, to ameliorate the effects of poverty (Gindling 2018). Generally, it is also believed that poverty is the main cause of thuggery, armed robbery, prostitution, civil strike, ethnic riot and other social vices (WFP 2017). Similarly, Mood and Jonsson (2016) noted that each of the consequences of poverty has its own distinct effect on both individuals and society in general. Without a critical evaluation of the poverty status of the households and the role endowments and assets play, it will be nearly impossible to make meaningful predictions and recommendations on poverty reduction by development experts, researchers, and policymakers. An appropriate approach and analysis will assist in proffering solutions aimed at improving the welfare conditions of rural households. Consequently, this paper examined the poverty situation of the rural households and it investigated the role of household endowments on poverty reduction in Ijebu Jesa, Oriade Local Government Area of Osun State, Nigeria

## MATERIAL AND METHODS

### Study Area and Sampling Technique

This research was carried out in Ijebu Jesa, in the Oriade local government area in Osun State, Nigeria. It is eight kilometres north of Ilesa and about 128 kilometres east of Ibadan with a population of approximately 52,000. The town lies roughly on latitude  $7^{\circ} 40' 2''$  N and  $7^{\circ} 43' 2''$  N as well as longitude  $4^{\circ} 48' 2''$  E and  $4^{\circ} 50' 2''$  E within the rainforest belt, which gave room for agricultural production on a large scale. The people are referred to as the core Ijesa and are distinguished for their dogged abilities in the creation of industries (Agboola et al. 2016) (Fig.1).

A multi-stage selection procedure was used to obtain primary data with the use of a well-structured questionnaire from 120 rural households. The first stage utilises the purposive sampling technique to select 10 quarters out of 12, which are Odo-Ese, Okenisa, Iloro, Odo-Oja, Odo-Afin, Irekari, Ogbeje, Odogo, Irepodun, and Oke-Eriru, due to their prominence in agribusiness. Afterward, 12 households were systematically selected from each of the chosen quarters to have wide and fair representation. The collected data comprises of households' socio-economic characteristics, household income and expenditure trend on the food item

and non-food item, the occupation of the inhabitants of the household, level of education, the farm size and land under cropping. Furthermore, labour sources, amount of credit, extension services, and so on are components of the data collected. This paper made use of two sets of analyses, which are descriptive analysis and inferential analysis. Descriptive statistics such as frequency counts, percentage, mean, and standard deviation were used in the research. Two analytical techniques were explored for this research. They are FGT (Foster et al. 1984) measurement of poverty, as well as the logit regression. Logit regression is used in examining the effect on households' endowments on poverty reduction. Ethical requirements were observed in line with the ethical regulations of the Department of Agricultural Economics and Extension, Ladoke Akintola University of Technology, Ogbomosho. All regulations were complied with, and informed consent was obtained from the respondents.

### *Analytical Model I: FGT Index Measure of Poverty*

This model was used to assess the poverty state of rural households within the study area. The FGT poverty index is a family of the additively decomposable degree of poverty recom-



Fig. 1. Map of Ijebu Jesa  
Source: Mapquest 2019

mended and established by Foster et al. in 1984. The method is generally used to measure poverty, and it measures the outfall from the poverty line and considers inequalities among the poor. The model utilises the poverty headcount index ( $P_0$ ), poverty depth index ( $P_1$ ), and the poverty severity index ( $P_2$ ). The headcount index is the ratio of the total sampled respondents whose consumption fell below the poverty line. The higher the FGT statistic observed, the higher the prevalence of poverty in rural households. This method of examining poverty has subsequently been put to test and utilised by a number of researchers and policymakers (Akerele 2011; Adetunji 2012; Asogwa 2012). For this study, the adopted poverty line was built on the expenditure of USD 1.25 per person per day. Respondents who spend below this level are classified as being poor and above the level are non-poor.

$$P\alpha = \frac{1}{n} \sum_{i=1}^q \left( \frac{Z - Y_i}{Z} \right) \alpha \quad (1)$$

Where,

- $P_\alpha$  = Foster, Greer and Thorbecke index
- $n$  = Population of sampled households
- $z$  = Poverty line (USD 1.25 to N 196.25)
- $y_i$  =  $i^{\text{th}}$  household expenditure per capita
- $q$  = Number of households below the poverty line
- $\alpha$  = Parameter of FGT (where  $\alpha$  represents 0, 1 and 2 respectively, dependent on the level of concern as poverty depicts)

However, if there is an increase in the value of  $\alpha$ , the aversion to poverty as measured by the index increases. So, when there is no aversion to poverty  $\alpha = 0$ , then the index simply becomes:

$$P_0 = \frac{1}{N} q = \frac{q}{N} = H \quad (2)$$

This denotes the headcount proportion of poverty incidence. When  $\alpha = 1$ , the index so generated is a measure of poverty depth or poverty gap. Lastly, when  $\alpha = 2$ , the index generated is the severity of poverty. The closer the value is to 1, the more severe the poverty condition in the rural household.

### **Analytical Model II: Estimating the Influence of Household Endowments on Poverty**

Logistic regression is utilised in predicting a categorical dependent variable based on con-

tinuous and/or categorical independent variables. The model is also used to determine the effect of the independent variables on the dependent variable, to rank the relative importance of independent variables, to assess interaction effects, and to understand the impact of covariate control variables (Sperandei 2014). The logistic regression technique can also be utilised to model the relationship between the dichotomous dependent variable and a set of independent variables that are hypothesised to affect the outcome (Garson 2014). The logit model assumes that while one only observes the values of 0 and 1 for the variable  $Z$ , there is a latent, unobserved continuous variable  $Z$  that determines the value of  $Z$  (Kuha and Mills 2018). However, this model was applied to ascertain the role of the households' endowments on poverty reduction among rural households in the study area.

The logistic prediction equation used is given as:

$$Z = b_0 + b_1x_1 + b_2x_2 + \dots + b_kx_k + u \quad (3)$$

Where,

- $Z$  = Poverty status (poor = 1, otherwise = 0)
- $b_0$  = Constant
- $b_1, b_2, \dots, b_k$  = Regression coefficients, which interpret the effect of  $x$  on  $Z$
- $x$  = Independent variables
- $k$  = Number of independent variables
- $p$  = Probability of the presence of a characteristic of interest
- $u$  = Error term

As recommended by Zellner et al. (2004), the variables selection procedure was used to eliminate redundant variables in sequential order until the best fit was obtained. The independent variables fitted into the logistic regression model, and their measurements are given as:

- $X_1$  = Age of the respondents (years)
- $X_2$  = Gender of the respondents (female = 1, otherwise = 0)
- $X_3$  = Years spent in school (years)
- $X_4$  = Cooperative membership (Dummy: membership = 1, otherwise = 0)
- $X_5$  = Access to credit facilities (yes = 1, otherwise = 0)
- $X_6$  = Household income (actual)
- $X_7$  = Access to mobile (Dummy: access = 1, otherwise = 0)
- $X_8$  = Household size (actual)

## RESULTS AND DISCUSSION

### Socio-economic Demographic Characteristics of the Sampled Respondents

According to Rehman et al. (2013), demographic characteristics go a long way to influence the rate of efficiency in production. The demographic results for this research are hereby presented in Table 1. The results include the distribution of the households by gender, age, level of education, occupation, and household size. This paper shows that out of the 120 sampled respondents in Ijebu Jesa, 58 of them are females, which amount to 48.3 percent while 62 are males making the remaining 51.75 percent. This implies that the ratio of the female is lesser than that of the male in the study area.

The age categorisation as shown in Table 1 reveals that the respondent's age range 20-30 constitutes about 16.5 percent while the ones with age range between 31-40 years constitute

30.9 percent. Also, respondents within the range of 41-50 reflect 29.1 percent, while 23.3 percent fall within the range of people above 50 years of age. Many of the respondents are active economically as the majority of them fall between 31-50 years of age. Table 1 shows that 4.2 percent have no formal education, 28.3 percent are observed to have completed primary education, and 10.8 percent have not completed primary education. It also shows that 28.3 percent have completed their secondary education, while 13.3 percent have not. Only 6.7 percent have completed their tertiary education while 8.3 have not. With this result, it is obvious that a large percentage of the respondents are educated.

Furthermore, Table 1 confirms that 18.3 percent of the respondents have civil service as their primary occupation, while 20.8 percent are involved in private business, with artisans amounting to only 10.8 percent of the sampled households. The data obtained also reveals that 34.2 percent of the respondents, which accounts for the majority, are farmers with only 15.8 percent practicing another form of occupation. The size of the household includes the total number of all the usual inhabitants in the rural household. A larger household size makes labour available for the household, which in turn makes agricultural production easy thus, reducing poverty. About 54.9 percent of the sampled households have not more than three members, while households whose members are between 4-6 and 7-9 hold 27.5 percent and 7.4 percent, respectively. However, households with more than 10 members in the study area account for 10.0 percent.

### Distribution of Households by Endowment Indices

Table 2 shows the various types of household endowment possessed by the observed rural households. It is observed that eighty percent make use of a television set while the remaining twenty percent do not. This means that the majority of the households are positioned to having access to prompt and timely media information on poverty. Also, the survey, as shown in Table 2, indicates that 17.5 percent of the respondents stay in a single room with 63.3 percent majority staying in a room and parlour, while 14.2 percent stay in a flat and 5.0 percent stay in

**Table 1: Socio-economic characteristics**

<i>Variables</i>	<i>Frequ- ency</i>	<i>Perce- ntage</i>
<i>Gender</i>		
Female	58	48.3
Male	62	51.7
<i>Age</i>		
20-30	20	16.5
31-40	37	30.9
41-50	31	29.3
50 above	32	23.3
<i>Educational Level</i>		
No formal education	5	4.2
Primary education completed	34	28.3
Primary education uncompleted	13	10.8
Secondary education completed	34	28.3
Secondary education uncompleted	16	13.3
Tertiary education completed	8	6.7
Tertiary education uncompleted	10	8.3
<i>Occupation</i>		
Civil servant	22	18.3
Private business	25	20.8
Artisans	13	10.8
Farmers	41	34.2
Others	19	15.8
<i>Household Size</i>		
1-3	66	54.9
4-6	31	27.5
7-9	9	7.4
10 and above	12	10

Source: Field Survey, 2012

**Table 2: Distribution of households by endowment indices**

<i>Variables</i>	<i>Frequency</i>	<i>Percentage</i>
<i>Possession of Television</i>		
Yes	96	80.0
No	24	20.0
<i>Household Type</i>		
Single room	21	17.5
Room and parlour	76	63.3
Hut	6	5.0
Flat	17	14.2
<i>Toilet Facilities</i>		
Water closet	62	51.6
Pit toilet	45	37.5
Bushes and bare ground	13	10.8
<i>Water Source</i>		
Dug well	32	26.7
Tap water	20	16.7
Borehole	55	45.8
Others	13	10.8
<i>Health Facilities</i>		
Clinic	89	74.2
Chemist	25	20.8
Herbs	6	5.0
<i>Electricity Access</i>		
Yes	107	89.2
No	13	10.8
<i>Membership of Cooperative</i>		
Yes	35	29.2
No	85	70.8
<i>Possession of Mobile</i>		
Yes	43	64.2
No	77	35.8

Source: Field Survey, 2012

a hut. According to Adetunji (2012), the type of toilet facility utilised by a household directly impacts the health status of the households. For this paper, 51.6 percent of the respondents make use of a water closet, 37.5 percent use pit toilet, and 10.8 percent make use of bushes and bare ground. Also, from the data obtained in Table 2, it was noticed that 26.7 percent of the respondents make use of dug well, 16.7 percent make use of tap water and 10.0 percent make use of other sources of water, while 45.8 percent make use of boreholes as their source of water. This

suggests that the majority of the respondents have access to water.

Access to decent medical care is essential to the overall welfare of the people. In this regard, Table 2 shows that 74.2 percent of the sample size makes use of the clinic, 20.8 percent makes use of chemists, and a total of 6.0 percent of the respondents use herbs. The situation where members of a household do not go for treatment in the clinics or hospitals poses a serious threat to the household health condition, which by extension, affects welfare and productivity. Simply 89.2 percent have access to electricity. This implies that virtually all the respondents have access to electricity supply with a little of 10.8 percent with no access to an electricity supply. Furthermore, only 29.2 percent of the respondents have a membership in the cooperative society, while the remaining 70.8 percent do not. Table 2 also shows that 64.2 percent of the households sampled do not possess mobile phones while 35.8 percent of the respondents have means of communicating with others.

### **Result of FGT Poverty Estimates**

This section provides an in-depth analysis of poverty status or the poverty level of the households in Ijebu Jesa. The estimated poverty lines of the respondents sampled are presented in Table 3, where  $P_0$  is the poverty headcount index,  $P_1$  represents the depth of poverty, and  $P_2$  signifies the poverty severity of respondents. A critical look at the data reveals that 48.3 percent of the respondents in the study area fall below the poverty line meaning poverty is slightly prevalent in the study area. The result also suggests that there was no significant increase in the poverty headcount of the sampled area. Likewise, the findings show that to lift the respondents out of poverty, their poverty depth must be raised by 26.7 percent. However, the result of the severity of poverty among the respondents

**Table 3: Result of FGT poverty estimates**

<i>Year</i>	$P_0$	$P_1$	$P_2$
2012	0.4833332	0.26758745	0.17137839
Poverty line	10351.95013	10351.950195	10351.950193

Source: Field Survey, 2012

reveals that 17.1 percent of the respondents' poverty condition is severe. As a result, if care is not taken, they might remain poor for the rest of their life.

### ***The Role of Household Endowments on Poverty Reduction***

This section provides the result of the regression calculation determining the role of household endowments on poverty reduction in Ijebu Jesa. The results from the fitted model shown in Table 4 show that the dependent variable is the poverty status of the respondents and the independent variables are the selected socio-economic characteristics of the respondents as well as household endowment variables. The chi-square value indicates 117.72, and it is significant at one percent. This shows the goodness of fit of the model, signifying that the model is suitable to explain the poverty situation of the households in the study area.

**Table 4: The role of household endowments on poverty reduction**

<i>Variable</i>	<i>β co-efficient</i>	<i>Sig / P-value</i>
Constant	16.428	0.999
Age	-0.116	0.669
Age square	0.003	0.317
Gender	-2.056	0.030**
Years of schooling	-0.022	0.817
Cooperative	2.217	0.036**
Access to credit	1.011	0.319
Household Income	0.000	0.009*
Access to mobile phones	3.977	0.037**
Household size	-2.949	0.000*
Household size square	0.158	0.004*

*Source:* Field Survey, 2012 \*, \*\* and \*\*\* means Sig. at 1%, 5% and 10% respectively

The gender of the respondents is observed to have a coefficient of -2.056 with a five percent significant level. This implied that an increase in gender (female) would boost the poverty profile of the household in the study area. This is logical as it is mostly said that females are more susceptible to poverty due to their little level of educational attainment and lack of prospects to own endowments (Anyanwu 2013). Again, men are known to have the ability to undergo rigorous activities with the aim of making additional income and that the public always discriminates

against females in the labour market. This assertion was supported by the findings of the United Nations' Department of Woman (2015), indicating that the poor and vulnerable tend to be females because they earn over twenty-three percent less than males. As a result, females are more vulnerable to experiencing poverty. Likewise, the commitment to accept responsibility for taking care of the household by males, especially in Africa, could be a contributory factor to why they work hard to support the household (United Nations 2011). This finding was justified by the study carried out by Olorunsanya et al. (2011) on the comparative analysis of poverty of both rural and urban households in Kwara State, Nigeria, highlighting that males have a lesser poverty condition than the females. The households involved in the cooperative organisation have a coefficient of 2.217, and it is significant at five percent. This signifies that being a member of a cooperative society is a very important tool that guarantees a suitable and decent livelihood for the farming household. Findings from Chambo (2009) also affirm that cooperative organisations have a meaningful effect in the development of rural households in terms of employment creation, rural market development, improvements of rural incomes and improved access to social services.

Furthermore, access to mobile phones has a coefficient of 3.977, and it is significant at five percent. This infers that members of the sampled size having access to mobile phones might not be troubled by poverty due to the fact that telecommunication makes access to information needed by the household for improved agribusiness easy to come by. Adding to that, the mobile device affords a means of quick response during difficult circumstances, and it reduces shocks that could lead to serious expenditure on health issues (Asongu 2015). Furthermore, income is observed to be significant at one percent with a coefficient of 0.000. This betokens that an increase in the income of the household will inspire poverty reduction because of the availability of more resources for investment. Income affords the household to take care of its basic needs, and the availability of other means of income decreases the possibility of the household falling into poverty. The household size coefficient is -2.949 and significant at one per-

cent. This suggests that the larger the size of a household, the higher the risk of being poor. This finding conforms to that of Meyer and Nishimwe-Niyimbanira (2016) on the impact of household size on poverty in South Africa. However, household size square has a coefficient of 0.158 and it is significant at one percent. This shows that as the size of a household increases, the number of non-poor reduces at an increasing rate.

### CONCLUSION

To reduce the prevalence of poverty in Nigeria and in the realisation of the Sustainable Development Goal 1 of the United Nations, which is, ending poverty in all forms, this type of research becomes imperative. This potentially can provide policymakers and researchers with the needed background information on the current state of poverty, and give a sufficient direction on how best to proffer solutions to the threat of poverty and hunger in Nigeria and other Sub-Saharan African countries. The results obtained indicated that socio-economic factors like age, gender, and education level of the household heads are essential factors in explaining the role of the household endowment on poverty reduction in the study area. Likewise, the distribution of households by welfare indices suggests that households in the study area are not living in an extremely bad situation because the majority of them still have access to facilities like television, reasonable accommodation with modern toilet and good water supply. Endowments like membership of a cooperative society, possession of mobile phones, and household income are detected as important variables in reducing poverty in the study area as well.

### RECOMMENDATIONS

In light of these research findings, it is suggested that the government should introduce policies aimed at facilitating easy membership of cooperative associations, most notably for females in the study area. The tariffs on telecommunication should be subsidised to encourage ownership of mobile phones. Equally, the respondents should be encouraged to diversify into other forms of income-generating activities

to improve their revenue and expenditure. Also, there is a need for the government and cooperate bodies to enhance the human capital of the household members through vocational activities to lessen and cushion the effect of poverty in the study area.

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