

## Poverty and Asset Ownership in Rural Nigeria

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### ABSTRACT

This study examined the effect of asset possession on poverty reduction among female headed household (FHH) in rural Nigeria, using the 2013 GHS data. Descriptive statistics, principal component analysis, Foster, Greer and Thorbecke and Ordered Probit models at  $\alpha_{0.05}$  were used to analyse 424 FHH. Majority (80.7%) of the FHH were widows. Age and household size were  $58 \pm 13.7$  years and  $6 \pm 3.4$  persons per household, respectively, while 57.8% did not have formal education. Asset possession index of the FHH was low. Poverty line was N20, 172.4 per annum and the mean per capita expenditure was N30, 258.6. Sixty-one percent of the FHH were core-poor, 17.5% were moderately poor and 21.9% were non-poor. Poverty incidence, depth and severity increased as household size increased and decreased with the level of education of the households. Aggregate asset ownership, educational level and membership of a cooperative society were the major poverty-reducing variables among the FHH in rural Nigeria. The study recommends that FHH should be encouraged to possess more assets. Owning assets will not only provide economic growth and income but a very critical determinant of poverty reduction

**Keywords:** Asset ownership, Poverty incidence, Female-headed household, Rural Nigeria.

### INTRODUCTION

High degree of vulnerability and poverty characterized the economic situation of the rural population in Nigeria (National Bureau of Statistics (NBS, 2010). Poverty has been describe by various studies as a phenomenon that encompasses different dimensions of deprivation which relate to human capabilities, including consumption and food security, health, education, rights, voice, security, dignity, and decent work. (Samuel *et al.*, 2014).The high poverty levels also promote continued landlessness, few asset acquisition and poor health, which prevent asset transfer across generations and promote a cycle of chronic poverty from one generation to the other.

In an attempt to reduce poverty, Nigeria government has embarked on several approaches in which most of them focused on certain aspects of poverty such as low income, unemployment, economic growth and poor nutrition; only few have considered asset ownership (Innocent *et al.*, 2014). Failure of many poverty-alleviation programmes has been attributed to absence of good governance and inappropriate approaches as Omonona *et al.*, (2009) argue that poverty reduction should be addressed with a multi-pronged approach in order to achieve more marginal improvement in the standard of living of poor households. Therefore, reducing poverty requires not only economic growth, good nutrition, income distribution e.t.c. but also investment in asset ownership so as to improve the productive capacity of the households (World Bank, 2014).

IFAD (2012) also states that owning assets is crucial for broad-based growth and poverty reduction. Assets are stock of financial, human, natural or social resources that can be acquired, developed, improved and transferred across generations (The Ford Foundation, 2004). Possession and control of assets provide multiple benefits to individuals and households. (Deere and Unidos, 2010).

Assets possession by women cannot be overemphasis as Dim *et al.* (2014) assert that owning assets empowers women socially, economically and politically. Women that possessed assets have additional bargaining power not just in the household, but also in their communities and other public arenas (Angahar, 2012). Women’s ownership of assets also keeps them out of poverty or saves them from destitution; leads to better outcomes for children, such as increased school retention or higher expenditures on education and health; or results in better outcomes for women in case of separation, divorce or widowhood (Deere and Doss, 2006).

Therefore, asset possession and poverty reduction of rural female headed households in rural Nigeria is the focus of the study. The findings of this study will aid policy makers and NGOs in effective formulation of poverty-reduction strategies that will focus on increasing the asset ownership of rural women in ways that will translate to improvement on their standard of living and productivity.

## METHODOLOGY

(Scope and Source of data)

Nigeria is the most populous country in Africa and the ninth most populous country in the world. Nigeria covers a land area of 923,768km<sup>2</sup> with 1.4% covered by water. Nigeria is made up of 36 states and a Federal Capital Territory (FCT), grouped into six geopolitical zones. The data for the study was sourced from the General Household Survey (GHS) data of 2013, collected by National Bureau of Statistics (NBS). Four hundred and twenty four female headed households selected from the data were drawn from 10983 sampled rural households by the National Bureau of Statistics were analysed.

### Estimation of assets index

Principal Component Analysis (PCA) model was used to construct asset index. This involves resolution of a set of variables into a new set of composite variables or principal components that are uncorrelated with one another. (Filmer and Pritchett, 2001). The asset index derived was as follows:

$$A_j = \sum_{i=1}^n f_i (aji - ai) / Si \dots\dots\dots (ii)$$

Where

$A_j$  is an asset index for each household ( $j = 1, \dots, n$ )

$f_i$  is the scoring factor for each asset of household ( $i = 1, \dots, n$ )

$aji$  is the  $i$ th asset of  $j$ th household ( $i, j = 1, \dots, n$ )

$ai$  is the mean of  $i$ th asset of household ( $i = 1, \dots, n$ )

$si$  is the standard deviation of  $i$ th asset of household ( $i = 1, \dots, n$ )

### Poverty profile of female headed household in rural Nigeria

The standard FGT (Foster Greer and Thorbecke, 1984) was used to examine the poverty status of the rural women. FGT measure involves, the head count index ( $P_0$ ) poverty gap index ( $P_1$ ) and poverty severity index ( $P_2$ ). These measures respectively relate to different dimensions of the incidence of poverty. i.e the occurrence of poverty ( $P_0$ ), the depth of poverty ( $P_1$ ) and the severity of poverty ( $P_2$ ) at a point in time in the study area.

$$P_{\alpha} = \frac{1}{n} \sum_{i=1}^q \left[ \frac{Z - y_i}{Z} \right]^{\alpha, 0, 1, 2} \quad \text{--- (ii)}$$

Where:

Z = the poverty line defined as 2/3 of Mean per capita expenditure.  $y_i$  = the annual per capita expenditure  $q$  = the number of poor households in the population.  $n$  = the total number of households  $\alpha$  = the degree of poverty aversion parameter or the FGT index, which takes value of 0, 1 and 2.

**Ordered probit model**

The ordered probit model is for variables with ordered, discrete values. This is a regression model which generalises probit regression by allowing more than two discrete outcomes that are ordered. Using the poverty line above, the poverty level of women households was categorized into non poor, moderately poor and core poor which corresponds to censoring values 2, 1, and 0 respectively.  $y^* = x'\beta + \varepsilon$  .....(iii) where

$x$  and  $\beta$  are standard variable and parameter matrices, and  $\varepsilon$  is a vector matrix of normally distributed error terms, Obviously predicted grades ( $y^*$ ) are unobserved. Given the classification, the study derives the probabilities of being poor of different degrees as follows:

$$y = 0 \text{ if } y^* \leq 0 \text{ .....(iv)} \quad y = 1 \text{ if } 0 < y^* \leq \mu_1 \text{ .....(v)} \quad y = 2 \text{ if } \mu_1 < y^* \leq \mu_2 \text{ .....(vi)}$$

here  $\mu_1$  and  $\mu_2$ , are the cut points i.e. the threshold variables in the probit model.

The likelihood for poverty level by a household is

$$L = [\Phi(0 - X_i\beta)]^{z_{i1}} [\Phi(\mu_1 - X_i\beta) - \Phi(0 - X_i\beta)]^{z_{i2}} [1 - \Phi(X_i\beta - \mu_1)]^{z_{i3}} \text{ .....vii}$$

$$Z_{ij} = \begin{cases} 1 & \text{if } y_i = j \\ 0 & \text{otherwise for } j = 0, 1 \text{ and } 2 \end{cases} \text{ .....viii}$$

where for the  $i$ th household,  $y_i$  is the observed outcome and  $X_i$  is a vector of explanatory variables and  $\Phi$  is the cumulative logistic distribution. The unknown parameters  $\beta_j$  are typically estimated by maximum likelihood and  $Z$  is the poverty level.

$y$  = poverty status of rural women, (2 = non poor, 1 = moderately poor and 0 = core poor).

$X_1$  = age (years),  $X_2$  = Highest educational level (years of formal schooling)  $X_3$  = Marital status  $X_4$  = Occupation,  $X_5$  = Household size,  $X_6$  = Membership of cooperative,  $X_7$  = Access to Credit,  $X_9$  = Asset index,  $X_{10}$  = farm size (hectares)

**RESULTS AND DISCUSSIONS**

Socio-economic characteristics result of the rural FHH was presented in table 1, the result shown that majority (80.7%) of the FHH was widows and 10.6% were divorced. This indicate that most household with female heads were previously had male heads who were no longer alive. The result was similar to Horrell

and Krishnan's (2006) findings, that a large proportion of rural female headed household were either widowed or divorced and were directly in charge of their family management. Almost half of the FHH were older than 60 years. The mean age of the FHH was  $58 \pm 13.7$  years. With regard to the educational status of the respondents, the result shows that more than half of the FHH had no formal education, while 4.3%, 19.1% and 18.9% of the respondents had tertiary education, secondary and primary education, respectively.

**Table 1: Socio-economic Characteristics of the Respondents**

Socio-economic Characteristics	Frequency	Percentage	Mean
Marital status			
Single	8	1.9	
Married	29	6.5	
Widowed	342	80.7	
Divorced	45	10.9	
Age Range(Years)			
20-40	38	8.9	
41-60	183	43.2	
61-80	160	37.7	
>80	43	10.1	58 (years)
Educational level			
No Formal	245	57.9	
Primary	80	18.9	
Secondary	81	19.1	
Tertiary	18	4.3	
Household Size			
3-Jan	86	20.3	
6-Apr	131	30.9	
9-Jul	155	36.6	
> 9	52	12.3	
Occupation Status			6 persons
Farming	308	72.6	
Trading	95	22.3	
Civil Servant	21	4.9	
Membership of coop			
Members	120	28.3	
Non members	304	71.7	

Source: General Household Survey (GHS) Data (2013)

Table 2 presents the profile of the various household assets owned by FHH in rural Nigeria. More than 45% of the rural FHH in rural Nigeria did not own physical and human assets. Owning these assets could enhance good health, peace of mind and high mental development that can enhance proper planning and

improving household welfare (Awotideet *al.*,2011). Productive assets play an important role in reducing poverty; in other words, greater access to productive assets can increase women’s productivity in their various activities and translate to higher returns in the form of income and other measures of well-being (Shambe, 2012).Table 2 further reveals that, on average, more than 80% of the FHH did not own productive and financial assets. The result is similar to Shambel’s (2012) claimed that women’s access to and control of productive assets are seriously constrained by various social, cultural, economic, political and psychological factors in a household. According to Adepojuet *al.*, (2012), access to credit (financial assets) may enable farmers to purchase inputs or acquire physical assets, thus contributing to increased income. In summary, households with assets in various forms could have an edge over others in the provision of basic needs and make investments in future generations through health care, education, and training, while those lacking assets are more vulnerable to poverty and less able to recover from periodic disasters.

**Table 2: Assets ownership profile by female-headed households in rural Nigeria**

Assets	Frequency	Percentage
Physical	214	50.47
Productive	67	15.80
Financial	73	17.22
Human	179	42.22
Social	81	19.20

Source: General Household Survey (GHS) Data (2013)

**Poverty profile of female headed household in rural Nigeria**

Mean per capita expenditure of the FHH was estimated as N 30, 258.57 per annum with the poverty line of N 20,172.39 per annum, Also, 21.9 % of the FHH in the study areas were non-poor, 17.5% were moderately poor and 60.6% were core poor. the analysis undertaken for the whole sampled household yielded a poverty (incidence) head count ratio of 0.781, that is, 78.1% of the total population spent less than what they would need to meet minimum living standard requirements. Table 3 also indicates poverty depth as 0.5145, implying 51.45% whose average consumption expenditure was below the poverty line. The severity of the poverty index was 0.3922; that is, 39.22% represents the poorest among the FHH. All these imply that to escape from poverty female headed households has to mobilize financial resources to be able to meet 51.45percent of N 30,258.57 household per capita expenditure per annum and the core poor has to mobilize financial resources of 39.22percent more than is required for them to achieve the same feat.

The FGT result in table 4 revealed that the incidence, depth and severity of poverty increased as household size increased. This implies that the FHH with large household size tend to be poorer. In addition, the incidence, depth and severity of poverty were lower among rural FHH of aged 41-80 years. This age range belongs to the active population, which connotes that they may engage in some other secondary occupations, which tend to generate additional income for the household consumption expenditure.

Furthermore, the incidence of poverty, its depth and severity decreased with the level of education of the FHH. This is because education tends to open more opportunities for income generation through various means, such as participation in alternative livelihood activities. This result is similar to the claim of Adenegan *et al.* (2013) that education is a key factor in the reduction of rural poverty and those households with formal education have higher welfare level and lower poverty rate than households without formal education.

**Table 4: Poverty profile of female headed household in rural Nigeria**

Household characteristics	Poverty measures		
	Incidence of Poverty (%) P <sub>0</sub> 0.78	Poverty depth (%) P <sub>1</sub> 0.51	Severity of poverty (%) P <sub>2</sub> 0.39
<b>All Households size</b>			
<b>1-3</b>	0.53	0.24	0.16
<b>4-6</b>	0.79	0.50	0.36
<b>7-9</b>	0.92	0.66	0.56
<b>&gt;9</b>	1.00	0.77	0.63
<b>Age (years)</b>			
<b>20-40</b>	0.76	0.40	0.29
<b>41-60</b>	0.63	0.34	0.24
<b>61-80</b>	0.62	0.33	0.23
<b>&gt;80</b>	0.67	0.43	0.34
<b>Marital status</b>			
<b>Single</b>	0.63	0.18	0.23
<b>Married</b>	0.52	0.69	0.73
<b>Widowed</b>	0.65	0.36	0.26
<b>Divorced</b>	0.62	0.65	0.47
<b>Education</b>			
<b>No Formal</b>	0.73	0.37	0.26
<b>Primary</b>	0.66	0.36	0.25
<b>Secondary</b>	0.56	0.35	0.26
<b>Tertiary</b>	0.42	0.13	0.24
<b>Occupation</b>			
<b>Farming</b>	0.71	0.41	0.24
<b>Trading</b>	0.64	0.35	0.24
<b>Labourer</b>	0.33	0.13	0.06
<b>Civil Servant</b>	0.38	0.18	0.27
<b>Access to credit</b>			
<b>Yes</b>	0.52	0.21	0.14
<b>No</b>	0.65	0.35	0.25

Source: General Household Survey (GHS) Data (2013)

## The marginal effect of asset possession on poverty status of rural women in Nigeria

Table 5 reveals the marginal effects of the explanatory variables on poverty. The asset index was negatively significant ( $P < 0.05$ ), which implies that a unit increase in asset variable owned by the FHH lower the poverty level. That is, additional assets possessed by the FHH raises the household from poor to non-poor by 0.97% when compared to households without asset; and lower the likelihood that the household will fall under the categories of moderately poor and core poor by 0.95% and 0.81%, respectively. The view of Shambe (2012) noted that women's ownership of assets keeps them out of poverty or saves them from destitution which leads to better outcomes for children.

Table 5 also shows that household size was significant at 1% level ( $P < 0.01$ ) and had a positive effect on poverty status in order of category. This means that increase in household size by one adult would increase the probability of being core poor and moderately poor by 12% and 14%, respectively, while it lowers the likelihood that a household will fall under the category non-poor by 26%. The result is in consonance with Okurut and Adebua (2002) and Awotide *et al.* (2011), who argue that the larger the household size, the higher the dependency ratio is, and hence, the tendency to fall into poverty in the long run.

Age is expected to be associated with skill enhancement (experience), accumulation of resources, extensive social capital and others that ought to contribute positively to well-being (Bashaasha *et al.*, 2006). The results seem also to confirm the statement: where age of the household head is found to be negative and statistically significant ( $p < 0.10$ ), this implies that older households have greater likelihood of being non-poor. The educational attainment of FHH was negatively related to poverty level in the order of category. This shows that an additional year/level of education gained by the household head decreases the probability of the household being poor.

That is, it will decrease the probability of being core poor and moderately poor by 2.75% and 3.22%, respectively, while it increases the likelihood that a household will fall under the category non-poor by 5.22%. The implication of this result is that, despite the fact that more than half (57.78%) of the respondents had no formal education (as revealed by the descriptive analysis result in Table 1) poverty was lower among the few that were educated. This is similar to the findings of Akerele and Adewuyi (2011), Bogale, (2013) and Adekoya (2014) that education attainment enhances human capital and participation in the labour market and has been widely accepted as a veritable tool for poverty reduction and improving peoples' welfare.

Occupation was positively significant with farming at 1% level ( $p < 0.01$ ). This implies that the poverty level increases with FHH engaging in farming activities. This is in line with the claim of Awotide *et al.*, (2011) and Olawuyi *et al.* (2013), that poverty incidence, depth and severity were highest among households that had farming as a main occupation. Lawal *et al.* (2011) also reported that the poor households participated more in agriculture than non-agriculture. Engaging in farming activities will decrease the probability of being non-poor by 16.2%, while it raises the likelihood that a household will fall under the category moderately poor and core poor by 17.7% and 18.0%, respectively.

Being a member of a cooperative society was significant ( $p < 0.05$ ) and negatively related to household poverty. This implies that more involvement of the FHH in cooperative societies led to an increase in the probability of being non-poor by 7.3%, while it lowered the likelihood that the household would fall under the category moderately poor and core poor by 5.7% and 3.6%, respectively. This result corroborates the finding of Adepojuet *al.* (2011) and Ibitoye (2013), who found that agricultural cooperative societies performed moderately well towards agricultural development, economic improvement and capital formation of the rural dwellers.

**Table 5: Marginal effect result of the ordered probit for categories of poverty status**

Variables	Coefficient	Standard error	Z	Marginal effect for Y = core poor	Marginal effect for Y = moderately poor	Marginal effect for Y = non-poor
Asset index	- 0.6533**	0.0288	-2.27	-0.0081	-0.0095	-0.0097
Age						
Occupation	- 0.0470*	0.0281	1.67	0.0916	0.1087	0.1087
Farming	1.7983***	0.6745	2.67	0.1621	0.1772	0.1800
Trading	-0.9110**	0.4229	-2.15	-0.0519	-0.0596	-0.0596
Civil Servant	-0.1710	0.1825	-0.94	-0.0593	-0.0679	-0.0680
Household size						
1-3	0.2664	0.2409	1.11	0.0452	0.0560	0.0741
4-6	0.8928***	0.1499	5.96	0.1181	0.1444	0.2554
7-9	2.1385***	0.4408	4.85	0.0997	0.1241	0.1419
Education						
Primary	- 0.0624	0.1933	-0.32	-0.2689	-0.2853	-0.2854
Secondary	-0.1962	0.1791	-1.10	-0.2361	-0.2534	-0.2537
Tertiary	-0.8041 **	0.3667	-2.19	-0.0275	-0.0322	- 0.0522
Cooperative	-0.6995 **	0.3284	-2.31	-0.0363	-0.0574	-0.0734

**LR chi2(18) = 128.39, Pseudo R<sup>2</sup> = 0.1863 Log likelihood = -199.16195 Number of Observation = 424**

**Prob > chi2 = 0.0000**

Source: General Household Survey (GHS) Data (2013)

## CONCLUSION

The effect of asset ownership on household poverty was examined in this study. Majority of the FHH were widows without formal education and had no access to credit. More than half of the FHH were core poor, living below the poverty line. Poverty incidence, depth and severity increased as household size increased and decreased with the level of education. Aggregate asset ownership, educational level and membership of a cooperative were the major poverty- reducing variables among the FHH in rural Nigeria.

## RECOMMENDATION

Findings of this study underscore the need for appropriate policy intervention to encourage the ownership of certain assets. Owning assets will not only provide economic growth and income but a very critical determinant of poverty reduction. The study recommends that FHH should be involved in social network and accruing more skills since both are poverty reducing strategies. Also educational interventions that will encourage the acquisition of knowledge by the female folk should be designed.



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