COMPARISON ANALYSIS OF ASSET OWNERSHIP AND POVERTY STATUS OF FEMALE-HEADED HOUSEHOLDS IN RURAL NIGERIA

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ABSTRACT

This study analyzed asset ownership and poverty status of female-headed households (FHH) in rural Nigeria using the 2013 General Household SurveyData collected by National Bureau of Statistic. Descriptive statistics, principal component analysis, Foster, Greer and Thorbeeke and Ordered Probit models at α0.05 were used to analyse data collected from 424 FHH. The results revealed that asset index was highest in South-West Geo-political zone and lowest in North-Central. Mean per capita expenditure was N30, 258.6 while the poverty line was N20, 172.4 per annum. However, poverty incidence, depth and severity were higher in the North-Central geopolitical zone than the South-West counterparts. Aggregate asset index, educational status and membership of cooperative society of FHH significantly determined their poverty status. Also, additional aggregate asset for FHH reduced the probability of being core poor by 0.8% and likelihood of moderately poor by 0.9%. Female-headed household being in the North-East, North-West, South-East and South-Southhad theprobability of being poor reduced by 38.8%, 50.2%, 31.0%, 22.4% and 21.4% respectively relative to the North-Central.The study recommends that FHH should be involved in social network and accruing more skills since both are poverty reducing strategies.

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

1. INTRODUCTION

Assets are stock of financial, human, natural and social resources that can be acquired, developed, improved and transferred across generations (The Ford Foundation, 2004; Kumar and Agnes, 2014). Sherraden, (2008) affirmed that assets give people the opportunity to realize their maximum potential and to escape poverty. Ownership and control of assets such as land and housing provide multiple benefits to individuals and households, including a secure place to live, livelihoods, protection during emergencies and collateral (Deere and Unidos, 2010). Studies have also shown that owning asset has a more sustainable impact on well-being and determines the economic activities of rural households (Lawal *et al.*, 2011). 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;Shambe, 2012).

According to Onyemauwa (2012), women constitute about half of the total population of Nigeria, and a significant number of them have been acknowledged to be living in the rural areas as small-scale poor illiterate farmers. Yet they are the backbone of agriculture, which is the mainstay of Nigeria's economy. They are also the centre for family life and custodians of

cultural and fundamental values of the society.Despite these functions, their incomes and ownership of certain assets is still relatively low. Furthermore, in rural Nigeria, women own fewer assets than men (Deere and Doss, 2006). Women own animals, but their ownership is typically restricted to small ruminants and relatively low-value assets, compared to men. For instance, while men own horses and dairy cattle in large numbers, women own small dairy cattle, pigs, poultry, and so on (Njuki and Mburu, 2013). Also, women's ability to accumulate assets is governed by norms that historically have favoured men, and these legal systems limit the extent of women's control over assets (Kumar and Quisumbing, 2014).

Women are generally poorer and more affected by poverty than men, with the most vulnerable to poverty being households headed by widows, infertile women, unmarried mothers and mothers with only female children. This situation has worsened their condition of living, manifesting in poverty. Therefore, for these households to increase their incomes and asset portfolio, the poverty situation has to be curbed (UNSN 2001; Kumar and Quisumbing, 2014).

Poverty has many causes, all of which reinforce one another. The sources include lack of assets, such as land, tools, credit and supportive networks of friends and family; lack of basic services, such as clean water, education and health care; and lack of employment income, to provide food, shelter, clothing and empowerment. Since the sources of poverty are diverse, it should be seen as a multi-dimensional problem that calls for a solution with a multi-pronged approach, especially as it affects farming households who face multiple disadvantages.

There have been different approaches to reducing rural poverty in Nigeria, but their focus has been on certain aspects or manifestations of poverty, such as low income, unemployment, economic growth and poor nutrition; only few have considered asset ownership (Innocent *et al.,* 2014). While Innocent *et al.,*(2014) attributed failure of many poverty-alleviation programmes to absence of good governance and inappropriate approaches, Omonona*et al.,* *(*2009) argued 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, but also investment in asset ownership so as to improve the productive capacity of the households (World Bank, 2014). IFAD (2001) also states that owning assets is crucial for broad-based growth and poverty reduction. The uniqueness of this study is its focus on showing the aggregate effects of asset ownership on the poverty status of female-headed households in rural geo-political zonesof Nigeria.

2.METHODOLOGY

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^2 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). Data were collected from 10983 rural households, however, only four hundred and twenty fourfemale headed households were considered for the study.

Methodological procedures for constructing asset index

The asset index was constructed using Principal Component Analysis (PCA) model. 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 from PCA for each household asset can be written as follows:

$$Aj = \sum_{i=1}^{n} f_i\left(aji - ai\right)/Si \quad \text{... ..(ii)}$$

Where

Aj is an asset index for each household (j =1,……,n)
fi is the scoring factor for each asset of household (i =1,……,n)
aji is the ith asset of j th household (i ,j =1,……,n)
ai is the mean of ith asset of household (i =1,……,n)
si is the standard deviation of ith asset of household (i =1,……,n)

Construction of the Poverty Indices:

In line with previous poverty studies (such as Adepoju *et al*., 2012) per capita household consumption expenditure was used as a proxy for per capita household income, and this relative poverty measure was used to categorize the rural households into core poor, moderately poor and non poor in this study(World Bank, 2010).

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   α = the degree of poverty aversion parameter or the FGT index, which takes value of 0, 1 and 2.

Ordered probitmodel

The ordered probit model is for variables with ordered, discrete values. This is a regression model which generalizes 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 nor poor, moderately poor and core poor which corresponds to censoring values 2, 1, and 0 respectively. $y^* = x'\beta + \varepsilon$ ……………..(iii)
where x and β are standard variable and parameter matrices, and ε is a vector matrix of normally distributed error terms, Obviously predicted grades (y^*) are unobserved.Given the classification, the studyderives the probabilities of being poor of different degrees asfollows:
y = 0 if $y^* \le 0$ …….(iv)y = 1 if $0 < y^* \le \mu1$ …….(v)y = 2 if $\mu1 < y^* \le \mu2$. …….(vi)
here µ1 and µ2, are the cut points i.e. the threshold variables in the probit model.
The likelihood for poverty level by a household is

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

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

where for the *i*th household, *yi*is the observed outcome and *Xi*is a vector of explanatory variables and Φ is the cumulative logistic distribution. The unknown parameters *βj* 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 = Asset index), X_2 = Educational level (years of formal schooling)X_3= Cooperative **X_4** =North Central, X_5 =North East, X_6 =North West, X_7 = South East, X_9 = South South, X_{10}= South West

3.RESULT AND DISCUSSIONS

Table 1 presents the profile of the various household assets owned by female headed households in rural geo-political zonesof Nigeria. More than 45% of the female headed households in rural geo-political zonesof Nigeria did not own physical and human assets. Owning these assetscould enhance good health, peace of mind and high mental development that can enhance proper planning and improving household welfare (Awotide*et 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).The table further reveals that, on average, more than 80% of the female headed households did not own productive and financial assets. The result is similar toShambel'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 Adepoju *et 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 1: Assets ownershipprofile by female-headed householdsin 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)

Table 2 reveals the average assets index across the geopolitical zones in rural Nigeria. The South-West zone hadthe highest asset variables with asset index of 0.9478 (95%) followed by North West (68%) and North East (47%) while North Central zone had the least. This result is contrary to the findings of previous studies such as Awoniyi *et al.* (2011);Njuki and Mburu

(2013)which revealed that the northern region generally had low level of assets. This could be due to the fact that the asset index was generated from the aggregation or combination of different asset variables. This implies that aggregating a number of different assets to measure asset ownership could give different result if only one asset is considered. This was consistent to the claim of Lawal *et al.,* (2011) that access and use of combination of human, financial, physical, productive and social capital assets were important in reducing the poverty status of farming households. This could also be associated with the type of assets and asset ownership objectives. According to Barrett and Reardon (2000) asset ownership depends on ownership characteristics and objectives therefore, rural household may prefer to own more of productive and physical assets and less of human, social and financial assets. Studies have shown that owing productive and physical assets are crucial for the livelihood of rural people (Edet*et al.,* 2014). This was consistent with the findings of Deere and Unidos, (2010) that productive and physical (land) assets are especially important for rural people, who frequently rely on a combination of agricultural production and self-employment to obtain their livelihoods.

Table 2: Average Assets Index of female headed household

Zones	Frequency	Percentages	Assets Index
North Central	60	14.15	0.0532
North East	20	4.72	0.4746
North West	12	2.83	0.6780
South East	164	38.68	0.1571
South South	117	27.59	0.3010
South West	51	12.03	0.9478
Total	424	100	

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

Analysis of household poverty

Mean per capita expenditure of the FHH was estimated as ₦30, 258.57 per annum with the poverty line of ₦ 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 result is similar to the findings of Adekoya (2014) whoexplained that poverty in Nigeria is largely a rural phenomenon. The result indicates a high level of poverty among female headed households in rural Nigeria.

Table 3: poverty level of female-headed householdsin rural Nigeria

Poverty level	Frequency	Percentage	Annual Mean PCE (₦)
Core poor	257	60.6	4,558.12
Moderately poor	74	17.5	15,077.55
Non- poor	93	21.9	27,698.82
Total	424	100.0	

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

Table 4 captures the comparison between the poverty statuses of the female headed householdswith their asset index across the geo-political zones in rural Nigeria. The South-West geo-political zone hadthehighest percentage of core-poor population in term of mean per capita expenditure as well as highest asset index. This implies that some of the poor female headed householdsin this zone still have assets. The reason why they were poor (income poverty) might be because of the unstable economic situation of the country in term of income and expenditure but they were able to accumulate assets which could serve as a fall-back strategy against poverty. Because assets ownership gives people the opportunity to realize their maximum potential and to escape poverty (Sherraden, 2008). This was followed by North-West and North–East zones with asset index of 0.6780 and 0.4746 respectively. The result issimilar to Deere and Unidos' (2010) findings that household with large assets serves as a collateral that could be pledged to obtain credit for production and consumption smoothening.Glory and Nsikak-Abasi, (2014)findings also revealed that households that own assets commercialize or sell them during periods of hardship to generate additional income which could help to neutralize their poverty level. Poverty is more prevalent with households without assets when compared to households owning assets.

Table 4: Poverty level and averageasset index of female headed household across thegeo-political zone in ruralNigeria

Zones	Core poor	Moderately Poor	Non poor	Assets Index
	Percentage	Percentage	Percentage	
North Central	78.33	5.00	16.67	0.0532
North East	50.00	-	50.00	0.4746
North West	49.02	16.67	34.33	0.6780

South East	64.02	3.66	32.32	0.1571
South South	62.39	5.98	31.62	0.3010
South West	82.35	1.96	15.69	0.9478

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

Based on the poverty line estimated earlier, 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 5also 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 female-headed households. All these imply that to escape from poverty female headed householdshas to mobilize financial resources to be able to meet 51.45percent of ₦ 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 forthem to achieve the same feat.The FGT result in table 5 also revealed the extent and pattern of poverty among FHH across the geopolitical zonesin rural Nigeria. The incidence, depth and severity of poverty were higher in the South-East and South-South and south-West geo-political zones and lowest in North-East and North-West. This result is similar toOkonkwo, 2015 andEdoumiekumo,*et al., (*2014) findings that majority of the inhabitants of the South-South geopolitical zone were income poor. According to NBS 2010, poverty in the south- South was resulted from several factors including social irritability, poor local governance, and competition for economics resources. However, the incidence, depth andseverity of poverty were higher in the southern geo-political zones than their northern counterparts could be due to the traditional differences, socio-cultural practices and the ways in which women are treated in each of the zone. In the southern geo-political zones for instance, women are the one to labour and provide for the family (even for the husband) especially the South-South zone. While reverse is the case with the northern women, majority are kept indoors and not allow to do any serious job/work, all materials needed will be cater for by the husband. The result also revealed that North-Central zone had highest incident, depth andseverity of poverty; this is also similar to Obayelu, and Awoyemi, (2010) findings thatNorth-Central had the highest level of severity of rural poverty. Thus, poverty may be as a result of returns tovariations in natural assets and geo-climatic endowments.

Table 5: Poverty profile of female headed household in rural Nigeria

Zones	Poverty measures		
	Incidence of Poverty (%) P_0	Poverty depth (%) P_1	Severity of poverty (%) P_2
All	0.78	0.51	0.39
North Central		0.49	

	0.90		0.20
North East	0.43	0.10	0.05
North West	0.46	0.15	0.03
South East	0.63	0.30	0.09
South South	0.50	0.20	0.11
South West	0.74	0.33	0.12

Source: Author's computation, 2015

Effect of asset ownership on poverty status of rural women in Nigeria

Table 6 shows the marginal effects of the determinants of poverty of the female headed household in the geo-political zones in Nigeria andpoverty status. The asset index was negatively significant ($p < 0.05$), which implies that a unit increase in asset variable owned by the femaleheaded households lower the poverty level. That is, additional assets possessed by the female-headed households 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 Lawal*et al.* (2011) that access and use of combination of human, financial, physical and social capital assets are important to reducing the poverty status of farming households in south-western, Nigeria supports this finding.It is also supported by Bogale (2011)and Adenegan et al., (2013), who argue that assets have a negative correlation with poverty and that the value of household assets measures the ability of the household to withstand economic shocks and income shortfalls and to finance the purchase of household needs.

Therefore, the marginal effects of geo-political zones, such as North-East and South-South were significant at five percent, whileNorth-West,South-East andSouth-West were significant at one percent. This presupposesthat female headed households livingin North-East,North-West,South-East, and South-South relative to North Central had less probability of being core poor by 38.8 percent, 50.2 percent, 31.0 percentand 22.4 percent respectively. Alsothe probability of being non-poor categories will be increase for female headed households livingin North-East,North-West,South-East and South-South relative to North Central by 37.3percent, 45.7percent, and 33.4 percent and 23.8 percent respectively.South –West was positively related to poverty which implies that the probability of being core poor by female headed householdswill increase by 21.4 percent while the probability of being in non- poor categories decreases by 24.0 percent.

Table 6: **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	Marginal effect for Y = non- poor

				poor		
Asset index	- 0.6533**	0.0288	-2.27	-0.0081	-0.0095	-0.0097
Education	-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
North Central	-0.2465	0.3043	-0.81	-0.0905	-0. 0974	-0.0980
North East	-1.0155**	0.3991	2.54	-0.3882	-0.3721	-0.3731
North West	-1.3732***	0.4519	3.04	-0.5020	-0.4833	0.4570
South East	-0.8673***	0.2554	-3.40	-0.3109	-0.3351	-0.3338
South South	-0.6064**	0.2646	-2.29	-0.2243	-0.2365	-0.2381
South West	0.7134***	0.2402	2.97	0.2136	0.2468	0.2403

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

Prob > chi2 = 0.0000

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

4. CONCLUSION AND RECOMMENDATION

The index of asset ownership among the female headed households was low. South- West zone had highest asset index followed byNorth -West and North East contrary to the view of previous studies. This implies that aggregating a number of different assets to measure asset ownership could give different result if only one asset is considered.More than half of the female headed households were core poor, living below the poverty line. Poverty incidence, depth and severity were also higher in the North-Central geopolitical zone than the South-West counterparts. Aggregate asset ownership, educational level and membership of a cooperative were the major poverty- reducing variables among the female headed householdsin rural Nigeria.

Therefore, this study has shown that the degrees of poverty differ across the geo-political zones. This implies that poverty reduction strategies should be geographically targeted.The study recommends that FHH should be involved in social network and accruing more skills since both are poverty reducing strategies. Also, policies and programmes that will increase the value of assets owned by female headed households towards achieving equality with their male

counterpart should be developed as integral components of strategies to increase women productivities and poverty reduction since owning assets will not only provide economic growth and income but a very critical determinant of poverty reduction.

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