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Full Length Research Article

DETERMINANTS OF FARM HOUSEHOLD WELFARE IN PLATEAU STATE NIGERIA

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ABSTRACT

This study analyzed the incidence and severity of poverty among farm households in Plateau state, Nigeria. Secondary data obtained from Harmonized Nigeria Living Standard Survey conducted by the National Bureau of Statistics in 2009/2010 was used. Descriptive statistics was employed to describe the socioeconomic attributes and problems facing the farm households in the study area. Forster, Greer and Thorbecke poverty indices were used to decompose poverty while multiple regressions were used to estimate the socioeconomic determinants of household welfare in the study area. The poverty incidence for households affected by the incessant conflict in the state was 91% while those not affected was 56%. Smaller sized households have lower incidence of poverty while larger households have higher incidence of poverty. Result also showed that households whose per capita expenditure fell between ₦23372- ₦99900.40, ₦100564.10 - ₦198399.60, ₦201034.20- ₦249588.60 and ₦250536- ₦1308007 had poverty incidence of 89%, 70%, 3.23% and 2.05%, respectively. The result showed that educational level of household head, educational level of spouse and household size had a positive and significant relationship on the welfare of the household. The study recommends that all efforts for poverty alleviation should also be geared towards empowerment.

INTRODUCTION

Poverty in Nigeria has been described as being pervasive and persistent despite the fact that the country is one of the richest countries in Africa in terms of natural resource endowment. The nation's general picture depicts a continuous rise in poverty incidence. While in 1980 only 27. 2% of the Nigerian population were said to be poor, there was a continuous rise in the proportion between 1985 and 1998 (Ogwumike, 2001). Though the trend according to National Bureau of Statistics (2005) declined from 66.5% in 1996 to 54.4% in 2004, the fact that over 50% of the Nigerian population has remained poor should be seen in the words of Kwanashie (2000) as an unacceptable situation. A worrisome dimension is the fact that poverty is disproportionately concentrated among households whose primary livelihood depends on agricultural activities. Besides the fact that there have been some level of agricultural growth of 6.5% between 2002-2006 in Nigeria and then 40.84% of GDP in 2010(NBS, 2011), the problem of poverty among farm families still persists (WDI, 2007). Hence, there has been an increasing recognition that poverty reduction should be the overarching goal of development in Nigeria (Okunmadewa *et al*., 2007). Several efforts have been put in place by the federal government such as the establishment of national poverty reduction focused on Family Economic Advancement Programme (FEAP) in 1997 and the Poverty Eradication Programme of the civilian government in 1999 and the National Poverty Eradication Programme in 2000, among others. However, these efforts at poverty reduction have largely remained unfelt by the poor (Okunmadewa, 1998, 2001). While the emphasis in most of the interventions is on provision of physical infrastructure to support the poor and the acquisition of human capital, there has been little or no consideration for the development of local level institutions or mechanism to ensure delivery of support to the poor (Okunmadewa, 1998, 2001). The absence of such institutions and the weakness of existing ones largely disenfranchised the poor from participating in the decision making processes, interventions and issues affecting their welfare.

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Poverty among Nigerian household seems to be increasing and a greater proportion of the nation's wealth is being concentrated in the hands of the wealthiest. This widened gap of inequality further marginalizes the poor and has been one of the reasons for labour's demand for salary increment and may serve as a breeding ground for civil strife and political instability and insurgency. Moreover, the incessant ethno-religious crises that have persistently engulfed the state may not be unconnected with the poverty situation of the inhabitants who are mostly farmers. A cross examination of the poverty situation vis-à-vis the socioeconomic characteristics of households will provide insight to some basic underlining part ways to widened income gap and poverty in the state. This will provide guide lines for formulating policies and interventions that will help alleviate poverty in the state. The study therefore seeks to assess the poverty levels and the socioeconomic determinants of household welfare in Plateau state, Nigeria, with the view to providing recommendations for policy formulation that could help reduce poverty and improve the living conditions of farm households in the study area.

MATERIALS AND METHODS

The study was carried out in Plateau State, which has a total population of 3,178,712 and lies in latitude $80^0$24´ north and longitude $100^0$38´ east. The highlands rise from 1200 meters above the sea level at the low lands to a peak of 1829 meters above sea level. The climate has an approximately mean high temperature of 22^0c and mean low temperature of 18^0c. The mean annual rainfall varies from 131.75 cm in the southern part to 146 cm on the plateau, and highest rainfall is usually recorded in the months of July and August. Farmers in the study area rear livestock such as pigs, cattle, sheep, goats and poultry while crops such as potatoes, groundnut, exotic and local vegetables, fruits, yams, cassava and many other items. The Harmonized Nigeria Living Standard Survey (HNLSS) conducted by the National Bureau of Statistics in 2009/2010 was the source of data for this study from where 1258 farm households were selected. This was analyzed with descriptive statistics such as frequencies and percentages as well as FGT poverty indicators and multiple regressions.

Model Specifications

Poverty measure

The popularly used Foster, Greer, Thorbecke, FGT (1984) weighted poverty index for quantitative poverty assessment was used for this study due to its additive decomposability into sub-groups. This means that it can be used to decompose poverty into contributions from different subgroups under study. The study used an aspect of absolute (objective) poverty measure which considered both food and non-food expenditure using the per capita expenditure approach. The details of FGT is as shown below

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

When $\alpha = 0$, $P_0 = \frac{1}{n} = \sum_{i=1}^{q}\left(\frac{(z-y)}{z}\right)^{0}$ ----------Poverty incidence or headcount

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

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

Where

n = Number of Households in a group
q = The number of poor Households
z = Poverty line
y = The Per Capita Expenditure (PCE) of the i^{th} household
α = Degree of Poverty aversion.

Welfare model

The Ordinary Least Square Multiple Regressions was employed to analyse the various socioeconomic factors influencing household welfare in the study area. Empirical studies have shown that household per capital expenditure can provide insight into economic welfare or the living condition of household's especially in the situation where the major proportion of household income comes from the informal sector. Scholars such as Okojie (2002) and Benson and Mukherjee (2003) have modelled the determinant of household welfare by using the per capita household expenditure/consumption as dependent variable and other household characteristics and/or community factors as the independent variables. The welfare model is specified as:

$$LnY = a + b_1 X_1 + b_2X_2 + b_3 X_3 + b_4 X_4 + b_5 X_5 + b_6X_6 + e$$

Y = Household per capita expenditure (Naira)
X_1 = Educational status of household head (years)
X_2 = Educational status of spouse (years)
X_3 = Age of Household head (years)
X_4 = Gender of household head (1 = female, 0 = male)
X_5 = Remittance dummy (1 = if household received 0 = otherwise)
X_6 = Household size
e = Error term

RESULTS AND DISCUSSION

Socioeconomic characteristics of respondents

This study made use of 1258 farm households generated from the HNLSS 2009/2010 data. These households were headed by 1115(88.63%) males and 143 (11.37%) females.

Household size of Respondents

Table 1 shows the distribution of the sampled farm households in Plateau State Nigeria according to size. The table shows that

48% of the households had family sizes of 1-4, 45% had family sizes of 5-8 while 7% had 9 and above members in their household.

Table 1. Distribution of households according to size

Household size	Frequency	Percentage
1-4	605	48
5-8	565	45
9-12	35	3
13 and above	54	4
TOTAL	1258	100.00

The size of household can be a determinant of poverty. Okunmadewa, Yusuf and Omonona (2007).

Age of household heads

Table 2. Distribution of Households Heads According to Age

Age of Household heads	Frequency	Percentage
22-29	269	**21.0**0
30-39	390	31.00
40-49	288	23.00
50-59	107	9.00
60 and above	204	16.00
Total	1,258	100

The distribution of household heads according to age is shown in table 2. The table shows that 21% of the households heads are between the ages of 22-29, 31% are within the age of 30-39, while 23% are within 40-49 years of age while 26% are between the age of 50 and above. The age of the household head is negatively associated with the probability of being poor (Khalid *et al.*, 2005). According to Etim and Ukoha (2010), poverty incidence is highest (69%) and lowest (31%) when households are headed by persons within the age of 61–80 and 21–40 years, respectively.

Educational qualification of household heads

Table 3 indicates that 5% acquired primary education, while 95% had no formal education. This indicates that most of the respondents had no formal education.

Table 3. Distribution of Respondents based on Educational Qualification

Level of Education	Frequency	Percentage
No formal Education	1193	95
Primary Education	65	5
Total	1258	100

The distribution of respondents according to educational qualification shows that majority of the respondents (95%) had no formal education while 5% who had formal education was only up to primary school level. The high level of no formal education has a serious consequence on farmers because studies have shown that educated farmers have higher productivity than those without formal education. Mirotchie (1994) investigated technical efficiency in cereal crop production in Ethiopia using aggregate data for the period 1980-86. Since the data on education were weak, he advised that conclusions must be drawn with caution; he reported that primary schooling tends to increase productivity, while secondary schooling has no effect. Croppenstedt, Demeke and Meschi (1998), using data from a 1994 USAID fertilizer marketing survey, find that literate farmers are more likely to adopt use of fertilizer than those who are illiterate, though the quantity of fertilizer demanded does not depend upon literacy. Empirical evidence also reveal substantial internal (private) benefits of schooling for farmers productivity particularly in efficiency gains whose threshold effect was at least 4 years of primary education; are required to have a significant effect on farm productivity (Weir, 1999).

Educational qualification of spouse of household head

Table 5. Distribution of respondents according to Education of Spouse

Education of Spouse	Frequency	Percentage
No-Formal Education	1226	97.45
Primary	32	2.55
Total	1258	100

Table 5 shows the distribution of respondents according to the education of their spouse. Ninety seven per cent of the spouses of the respondents have no formal education while only 3% had formal education (Primary).

Decomposition of poverty measure

In poverty analysis it is always difficult to construct the poverty line. Hence this study used the same poverty line of fifty four thousand four hundred and one naira sixteen kobo (₦54,401.16) as used by the Nigeria's National Bureau of Statistics (NBS) in calculating poverty indices in 2010. The poverty measures considered were poverty headcount or incidence, poverty gap and poverty severity or squared poverty gap. The results are as follows:

Poverty and conflict in the study area

Plateau state for some time now has been devastated by ethno-religious crises

Table 7. Distribution of Poverty according to whether household was affected by conflict

	Poverty incidence	Poverty gap	Poverty severity
Affected	91	33	14
Not affected	56	25	13

The poverty situation among respondents according to whether households were affected by conflict is shown in Table 7. The poverty incidence for households affected by conflict was 91% while those not affected was 56%. The poverty gap for conflict affected households was 33% while for those not affected was 25%. While the poverty severity showed 14% and 13% for conflict affected and not affected households, respectively. The implication of the poverty gap result is that the respective percentages of the poverty lines are required by the households to escape poverty. The severity of poverty which is estimated at 14% and 13% for conflict affected and not affected households, respectively implied that there is 14% and 13% inequality respectively, among the households. Put differently,

a higher weight is placed on those households who are further away from the poverty line. This indicates how much of a gap is among the poor in each category of conflict affected and not affected households and what volume of resources is needed to bring these households closer to the poverty line or above it.

Household size and poverty measure of respondents

Table 8. Distribution of poverty measure according to Household size

Household size	Poverty incidence	Poverty gap	Poverty severity
1-4	21	.25	0.6
5-8	52	25	14
9-12	60	27	15
13 and above	66	29	15

A look at Table 8 shows that households with smaller sizes had lower incidence of poverty. That is, the larger the household size the higher the incidence of poverty. This finding is understandable. Large households will be expending more in household up keep than smaller households. Although it has been argued that larger households will mean more farm hands, whatever is produced will always be speedily consumed leaving little or nothing for sale.

Household per Capita expenditure and Poverty Measure

Here the study used per capita food expenditure and non-food expenditure as a measure of poverty instead of using income. The purpose of doing this is because of some reasons. First respondents usually find it more difficult to recall all their income as many income sources may be informal or transient; this is less likely to be a problem with expenditure, the bulk of which may be more frequent and regular. Secondly, respondents may have an incentive to understate or not declare certain sources of income if they fear that the information may be used for taxation purposes. Thirdly, respondents may have difficulty in calculating profits from household enterprises for which no formal accounts exist, and may simply not record them. Above all, the poverty indices in Nigeria are calculated based on household expenditure per capita.

Table 9. Distribution of poverty measure according to household per capita expenditure

Expenditure (₦)	Poverty incidence	Poverty gap	Poverty severity
23372-99900.40	89	48	29
100564.10-198399.60	70	25	12
201034.20-249588.60	3.23	0.13	0.00
250536-1308007	2.05	0.10	0.00

Table 9 shows that households whose per capita expenditure fell between ₦23372-₦99900.40, ₦100564.10-₦198399.60, ₦201034.20-₦249588.60 and ₦250536-₦1308007 had poverty incidence of 89%, 70%, 3.23% and 2.05%, respectively. Their poverty gap is also 48%, 25%, 0.13% and 0.10%, respectively. They also have a poverty severity of 29%, 12%, 0.00% and 0.00%, respectively. The reason why households who have expenditure (income) of more than 200,000 were still classified with poverty incidence of 2-3% was probably because of large farm household sizes.

Determinants of Household welfare

Result of the estimated welfare model shown in Table 10 indicates that the coefficient of multiple determinations (R^2) is 0.684. This means that 68% of the total variation in the household expenditure per capita (proxy for household income per capita) is accounted for by all the explanatory variables in the regression model. The significance of the F-value (12.323) implies that all the explanatory variables jointly exact significant influence on household welfare.

Table 10. Result of household welfare model

Variable	Coefficient	t-values	Probability
Constant	8.905	8.996***	0.000
Educational level of household head	0.068	1.719*	0.090
Educational level of spouse	0.161	1.731*	0.087
Age of household head	- 0.002	- 0.238	0.813
Household size	0.141	5.537***	0.000
Remittance	- 0.355	- 1.035	0.304
Occupational	0.363	1.143	0.257
R-Square	0.684		
F-value	12.323***		0.000

***: Significant at 1 % "-level; * *, Significant at 5 % "-level; *,Significant at 10% "-level

Out of the six explanatory variables used in the regression model, only three were statistically significant. They are educational level of household head, educational level of spouse and household size. The result showed that there is a positive and significant relationship between the educational level of household head and that of the spouse and economic welfare of the household. Okeke-Agulu (2012) had posited that the level of education of household heads is a strong variable in determining the probability of being poor. Educational level of household head and that of spouse both have positive influence on household welfare (measured by household per capita expenditure). This implies that an additional year gained by the household head and spouse in acquiring formal education would lead to rise in household income and by implication, the welfare of household members.

Educational attainment enhances human capital and participation in labour market and has been widely accepted as a veritable tool for poverty reduction and improving peoples' welfare. The coefficients 0.068 and 0.161 of household head and spouse suggest that an additional year in their education level is expected to result in 6.8% and 16.1% increase in household per capita income. This finding is in agreement with Handa, Simler and Hoarrower (2004) who posited that the educational level of adults in the household greatly influences household income. Empirical evidence also reveal substantial internal (private) benefits of schooling for farmers productivity particularly in efficiency gains whose threshold effect was at least 4 years of primary education; are required to have a significant effect on farm productivity , hence increase in income. This goes a long way to explain why there must be

orchestrated effort by all stakeholders to ensure the entrenchment of mass basic education in the study area. The result also shows that larger households are more prone to poverty than smaller households. Okunmadewa, Yusuf and Omonona (2007), had observed that a unit increase in household size is associated with 3.1% increase in poverty. Thus, the smaller the household size, the lower the probability of that household falling into poverty.

Conclusion

Poverty is widespread in Nigeria and Plateau state is not an exception. Those engaged in farming activities has been found to be poorer than those engaged in non-farming activities. This study has shown that educational level of household head, educational level of spouse and household size are statistically significant in determining farm household welfare in the study area. Hence concerted efforts should be made by policy makers and other stakeholders in order to improve the lot of farm households. This could be achieved through improving human capital capabilities in farm households through provision of adequate education and health to individuals especially in rural areas. More importantly, since the study area has been much prone to ethno-religious conflicts with its attendant increase in poverty incidence; calls for a need to formulate an approach to helping farm households to manage risk.

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