Full Length Research Paper

Poverty profile of rural farming household in Niger State and its implication on Food security in Nigeria.

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The near failure of various programmes and strategies by successive governments in Nigeria has been linked to the improper diagnosis of poverty as a static concept. There are growing concerns that poverty is not reducing due to the lack of understanding of its dynamic nature and vulnerability to poverty. About two-thirds of rural households in Nigeria are engaged in crop and livestock production as their main source of livelihood with most of these households vulnerable to chronic poverty. This study attempts a proper empirical identification of their poverty status and the reasons for their poverty, through a profile of poverty incidence, manifestations and causes of rural poverty in Shiroro Local Government Area of Niger State, Nigeria. Multi-stage sampling technique was employed in enumerating sixty household from four communities via administration of pre-tested questionnaire; viz., Kuta, Gwada, Mutum-Daya. Data collected were analysed using both Descriptive and Foster-Greer-Thorbecke (FGT) model. For poor farmers, results indicated that the incidence of poverty was more among older farmers, and less among younger farmers. Results of the analysis of the FGT model showed that 36.6 percent of the farming households were poor. Based on the indices of the poverty depth, poor farmers required ₦ 39.86 to escape poverty. Since livelihood status remained below the required levels for large parts of the rural populace during this research, identified poor households should be targeted for safety nets. Implications are drawn for rural education, birth control and industrialization with development policies to alleviate poverty and promote rural nonfarm income without shifting attention from agriculture.

Keywords: Poverty; poverty status; vulnerability; food security; Niger state; Nigeria

INTRODUCTION

In Africa, poverty remains a scourge that undermines development in contemporary African society in that, it is deep-rooted and pervasive (Adewunmi et al., 2011). Perhaps, nowhere else in the African continent is the scourge more prevalent than in Sub-Saharan African, where about one-sixth of the people are chronically poor (Adepoju and Yusuf, 2012). To reverse this trend, many Sub-Saharan African countries from the early 1980s initiated and implemented the IMF- World Bank Structural Adjustment Programmes (SAP). These programmes have been reported to have stimulated growth in most of these developing countries. However, in some other countries, there has been little or no change in terms of growth and poverty reduction.

Poverty in Nigeria is pervasive although the country is rich in human and material resources that should translate into better living standards. The high poverty rates in Nigeria go beyond low incomes, savings and growth because these are compounded by the high level of inequality resulting from unequal access to income opportunities and basic infrastructure. According to the NBS (2007), Nigeria has a more unequal distribution of income than Ethiopia, Madagascar, India, Niger, the United States and Sweden. In Nigeria, poverty is mainly a rural phenomenon with agriculture accounting for the highest incidence over the years. The poverty menace in the country has worsened since the late 1990s, such that every measure of poverty ranks Nigeria at the

bottom list of nations.

The Human Development Index (HDI) of 0.423 ranks the country 142 out of 169 countries in 2010. With estimated GNI per capita of $2156, life expectancy at birth of 48.4 years, Multidimensional Poverty Index (MPI) of 0.368 (UNDP, 2010) and more than half (54.4%) of the population below poverty line in 2004 out of which 36.6% of the total population are living in extreme poverty (NBS, 2005). This poverty situation remains an overwhelming challenge as findings of a 2013 Core Welfare Indicator Questionnaire (CWIQ) survey conducted by the National Bureau of Statistics revealed that over 67 per cent or two-thirds of Nigeria's rural population was poor. This situation is also a major threat to the nation's pursuit to be one of the 20 largest world economies by the year 2020 as the rural sector, from which about 70 percent of the populace derive their livelihoods, remains the country's treasure-house.

The inability of previous programmes and strategies to put a commensurate dent on the incidence of poverty in Nigeria suggests that the major issue is not that households are poor but the probability that a household if currently poor, will remain in poverty or if currently non-poor will fall below the poverty line (that is, household vulnerability to poverty). In other words, vulnerability to poverty is one of the factors that explain the ever-increasing level of poverty. Thus, sustained economic growth and development in Nigeria cannot be achieved without the alleviation of poverty (UNU, 2008).

Past studies (Oni and Yusuf, 2008) have established that most of Nigeria's poor live in rural areas and most rural households in Nigeria are poor. Also Omonona (2001) took the step of identifying sources of poverty among rural farming households in Nigeria. A vulnerability assessment of poverty in Nigeria by Alayande (2003) found, again, that rural Nigerians are the most vulnerable to poverty, but did not provide information on the expected poverty profile of rural Nigerians using idiosyncratic and covariate variables or shocks.

Despite the importance of poverty profile and vulnerability issues to social protection and poverty alleviation strategies, it is difficult to find literature studies that have an empirical account of poverty profile and vulnerability to poverty (expected poverty) of the different segments of Nigeria rural population. Neither is much literature available on how to discriminate among different sources of vulnerability to poverty among rural Nigerians. While there are numerous studies on poverty status and vulnerability in other developing and developed countries such as Russia, Bangladesh and Thailand (Bidani and Richter, 2001; Quisumbing, 2002; Skoufias, 2002), similar studies in Nigeria are few (Adepoju and Yusuf, 2012; Olubanjo et al., 2013, Adekoya, 2014), with no such kind of studies in Niger state. Welfare studies on Nigeria have often focused on

poverty line (FOS, 2013), despite the relevance of vulnerability to anticipating poverty problems beforehand and in future. There is especially a dearth of studies of this nature for rural Nigeria. It therefore follows that it is necessary to probe into livelihood status and what makes rural households in Niger state vulnerable to poverty. Granted that these households have different segments in terms of demographic and occupational compositions and the characteristics of the community in which the household resides.

Without doubt the issue of vulnerability in social protection strategy is important, since its study adopts a forward looking approach that not only identifies the groups of households that are presently poor but also the households that are vulnerable to poverty. Vulnerability study has since become very relevant to our day-to-day living because poverty is presently perceived to connote dreading the future - knowing that a crisis may erupt at any time, but without the knowledge of the extent of one's ability to cope with emerging crisis. It is in this view that this study intends to contribute to our knowledge on how vulnerable rural households in Nigeria are to poverty. Arising from the relevance of the vulnerability issue to social protection and poverty alleviation policies, the justification for our study emanates from the fact that the overlap between poverty and vulnerability is not perfect, in part because of the general agreement that poverty is a static concept and vulnerability is a dynamic concept. Clarifying the distinction between poverty and vulnerability is important especially since social protection strategy is moving from ex-post poverty strategies to ex-ante vulnerability considerations. The imperfect overlap between the vulnerable and the poor therefore suggests that different types of policies may be needed for social insurance and for poverty reduction. Second, much of the recent interest in household vulnerability as the basis for social protection strategy arises from the growing recognition that poverty may be a transient state for many households (Chaudhuri, 2000). Third, vulnerability studies of this nature will give governments and other social protection strategists the evidence base they need to take proactive measures to protect vulnerable households.

In this study we are interested in generating poverty profile and vulnerability to poverty of the different segments of rural households of Niger state, Nigeria. The various literature highlighted above have shown that there currently exists a dearth of empirical evidence as regards vulnerability studies in the sub-Saharan African countries and most especially in Nigeria. This study will, therefore, fill the gap in knowledge and literature on vulnerability issues in Nigeria. Poverty profiles and its vulnerability of this type can be useful illustrative devices in the discussions of policy priorities among such segments of Nigerian rural population. This study

expects to contribute to the scanty predicted poverty literature by determining household characteristics that affect consumptions of rural Nigerians. Thus, this research will help in the design of appropriate policies for social protection strategies and actions.

REVIEW OF LITERATURE

Poverty Profile

Poverty refers to a condition wherein some goods and services essential to a family's or an individual's welfare cannot be possessed due to lack of economic wherewithal; or wherein the income earned by a person is significantly less than the average income of the population (Schiller, 1980). Poverty in a given macro-economic environment stems from a complex interaction of factors such as limited endowment skill, access to credit and vulnerability to shocks affecting production system. It is important to point out that poverty denote more than a condition of material scarcity and is characterized by high proportion of poor households, unemployment, low per capita income, low caloric/protein intake, high incidence of child labour, high level of illiteracy, high level of infant and maternal mortality and life expectancy.

According to the World Bank (1999), poverty is hunger, lack of shelter, being sick and not being able to go to school, not knowing how to read, not being able to speak properly, not having a job, fear for the future, losing a child to illness brought about by unclean water, powerlessness, lack of representation and freedom. Schubert (1994), characterize poverty as either absolute or relative or both. Absolute poverty is that which could be applied at all times in all societies such as the level of income necessary for bare subsistence, while relative poverty relates the living standard of the poor to the standards that prevail elsewhere in the society in which they live.

The purpose of poverty measurement is to find out who is poor, how many people are poor, and where the poor are located. There are two approaches to the construction of poverty line, the absolute poverty approach and the relative poverty approach. The former is based on cost of basic needs (CBN) approach in which some minimum nutritional requirement is defined and converted into minimum food expenses. To this is added some considered minimum non-food expenditure such as clothing and shelter

Previous studies on poverty

Pritchett et al., (2000) and Chaudhuri et al., (2002) developed quantitative measures of vulnerability, as the

ex ante risk of facing poverty in the future. They defined vulnerability as the probability that a household will find itself consumption-poor in the near future employing different types of data and empirical methodology. Pritchett et al., (2000) estimated this vulnerability measure using panel data from two waves of the Indonesian survey of 1997 and 1998. They found out that half of their sample was vulnerable to poverty, although only 20 per cent of the population was defined as poor in the first year. Chaudhuri, et al. (2002) using cross sectional data from the mini-SUSENAS in Indonesia in December 1988 and a three-stage feasible generalized least squares procedure to estimate the inter temporal variance of the log of consumption on household characteristics, found out that at the national level, while 23 per cent of the Indonesian population was poor, 45 per cent of the population was vulnerable to falling into poverty in the future. Their estimates also showed that the highly vulnerable were disproportionately rural and were most likely to live in remote areas.

A related study by McCulloch and Calandrino (2002) applied the same technique to panel data from Sichuan, (the most populous province in China) between 1991 and 1995. They found that vulnerability was highest for those households in the lowest income and consumption quintile. Households in Sichuan were also found to be vulnerable to falling into poverty even when their average incomes/consumption was well above the poverty line.

Alayande and Alayande (2004) attempted a quantitative and qualitative assessment of vulnerability to poverty in Nigeria. In qualitative terms, they noted that weak governance structure in the form of absence of rule of law, lack of political effectiveness and efficiency and high level of insecurity were major sources of vulnerability to poverty in Nigeria and that the macroeconomic environment especially in terms of sluggish growth, low capacity utilization in the manufacturing sector and high rates of unemployment has increased vulnerability to poverty in Nigeria. However, in quantitative terms, the study applied the Chaudhuri (2000) methodology to assess the level of vulnerability to poverty in Nigeria. The findings of the study showed that 87% of Nigerians were vulnerable to poverty and that 68.5% of the population was highly vulnerable, whereas only 31.5% of the population had low mean vulnerability. The study, while noting that building a strong and virile governance structure can help reduce vulnerability in Nigeria, also recommended a pro- poor growth macroeconomic policy environment that would allow the vulnerable and the poor to make use of their hidden assets.

Similarly, Christiaensen and Subbarao (2004) using pseudo panel from rural Kenya conceived vulnerability as expected poverty and empirically assessed

household vulnerability using pseudo panel data derived from repeated cross section augmented with historical information on shocks. They found out that in 1994, rural households in Kenya faced on average a 40 percent chance of becoming poor in the future. Households in arid areas that experienced large rainfall volatility appeared more vulnerable than those in non-arid areas, where malaria emerges as a key risk factor. Idiosyncratic shocks also caused non-negligible consumption volatility. Possession of cattle and sheep/goats appeared ineffective in protecting consumption against covariant shocks, though sheep/goat help reduce the effect of idiosyncratic shocks, especially in arid zones. Of the policy instruments simulated, interventions directed at reducing the incidence of malaria, promoting adult literacy, and improving market accessibility held most promise.

Gunther and Harttgen (2006) extended the proposed method by Chaudhuri (2000), by introducing multilevel analysis (Goldstein, 1999) which allows a differentiation between the unexplained variance of the household level (i.e., the impact of idiosyncratic shocks) and the unexplained variance at the community level (i.e., the impact of covariate shocks) and also corrects for inefficient estimators, which might occur whenever variables from various levels (e.g. from the household and community level) are introduced in the regressions. Their approach to data from Madagascar showed that whereas covariate shocks had a substantial impact on rural households' vulnerability, urban households' vulnerability was largely determined by idiosyncratic shocks.

Oni and Yusuf (2008) on the determinants of expected poverty in rural Nigeria also extended the vulnerability to expected poverty approach with the incorporation of covariate risks in the regression analysis allowing for inclusion of time varying covariates (such as regional specific variables) namely: rainfall, radiation, notable diseases, and price level and unemployment rates among others. They found that both idiosyncratic and covariate factors affect the expected log per-capita consumption of rural Nigerians, overall expected poverty for the country at 53.5% is 1.02 times the observed poverty in 1996 and that higher expected poverty is synonymous with north east, no formal education, farming, older head of household, large household size and male headed household.

Kasirye (2007) employed panel data set of 1309 households in Uganda to measure vulnerability to poverty between 1992/93 and 1999/2000 and to estimate the impact of household characteristics on vulnerability. The likelihood of future poverty was estimated based on the expected mean and variance of household consumption. Education, spatial characteristics and access to community infrastructures were found to have important impact on vulnerability.

Specifically, reduction in vulnerability to poverty was found to increase with higher education attainment of the household head. Also households resident in northern Uganda were about 60 percent more vulnerable compared to their counterparts in central Uganda. The study also found that causes of vulnerability in Uganda were similar to causes of poverty. Hence policies to raise the earning capacity of poor households would help both the vulnerable and the poor.

Gaiha et al. (2007) drawing upon the Vietnam Household Living Standards Survey (VHLSS) data that covered the whole of Vietnam in 2002 and 2004, construct *ex ante* measures of vulnerability. These they compared with static indicators of poverty (i.e., the headcount ratio in a particular year). Detailed analysis of the panel data showed that (i) in general, vulnerability in 2002 translates into poverty in 2004; (ii) vulnerability of the poor tends to perpetuate their poverty; and (iii) sections of the non-poor slip into poverty. They conclude that durable reduction in poverty is conditional on (i) identification of the vulnerable, (ii) their sources of vulnerability, and (iii) design of social safety nets that would enable the vulnerable to reduce risks and cope better with rapid integration of markets with the larger global economy.

Jamal (2009) assessed the extent of household vulnerability to poverty in Pakistan. The estimates showed that about 52 percent of the population was vulnerable to poverty during 2004-05. The rural headcount ratio in terms of household vulnerability was also relatively high as compared to the vulnerability incidence in urban areas.

METHODOLOGY OF THE STUDY

The Study Area

The empirical setting for the study is Niger state of Nigeria, with a special focus on rural farming households in Shiroro LGA of Niger State. Gbagyi's is the main ethnic group in this region. It lies within latitude8°20'-11°30'N and longitude 3°30'-7°20'E with a total land area of 76,363 square kilometers and exhibits the typical tropical climate of averagely high temperature and high relative humidity. There are two distinct seasons, namely, the rainy season, which lasts from March/April to October/ November, and the dry season, which lasts for the rest of the year, October/November till March/April. The temperature is relatively high during the dry season with the mean hovering around 32°C. The harmattan, brought in by the north-easterly winds from December - February, has ameliorating effects on the dry season high temperatures. Low temperatures are experienced during the rains, especially between July and August when the temperatures could be as low as

24°C. The distribution of rainfall varies from about 1100 mm to about 1600 mm. The type of vegetation is Guinea savanna. The natural resource endowment of the region includes land, water, mineral, forest and agricultural resources, through which a wide range of agricultural and forest products are obtained. Important food crops are cereals, tubers, and sugar cane. The waterside areas produce fish abundantly. All these are resources that have been exploited for the development of the region.

Sampling Procedure and Size

Multi-stage sampling technique was used in the study. The first stage involved purposively selection of Shiroro LGA because it is predominantly noted for agriculture and presence of many rural communities in the state. The second stage involved the selection of four villages from the LGA, namely, Kuta, Gwada, Mutum-daya and Zumba. The third stage involved random selection of one rural farming community from each of the four villages while the last stage involved systematic random sampling of fifteen (10) rural farming households from each rural farming community, thus, a total sample size of 60 farming household.

Method of data collection

Both primary and secondary data were used for the study. Primary data involved the use of pre-tested questionnaire coupled with interview schedules, while secondary data involved the use of journals, textbooks, internet, and archives etcetera.

Analytical procedures

Data collected were analyzed using descriptive statistics (frequency distribution, percentages), poverty line construction model, Foster-Greer Thorbecke (FGT) in analyzing the extents and level of poverty among rural farming households.

Empirical Model

Construction of the poverty line:

Poverty line has been defined as the minimum or the cut-off standard of expenditure on food or per capita income below which an individual or household is described as poor (Adekoya, 2014). According to (FOS, 2013) there is no official poverty line in Nigeria and as such many earlier studies have used poverty lines which are proportions of the average per capita income.

However, in this study per capita income which is considered more appropriate in past studies because it is consistent and does not change over a period of time when compared to expenditure was adopted. Therefore, the poverty line was defined as the two-thirds (2/3) of the mean value of per capita income in the study area. The farm households were categorized into poor and non-poor group using the two-third mean per capita income as the bench mark (World Bank, 2011). Households whose mean per capita income falls below the poverty line are regarded as being poor while those with their income above the benchmark are non-poor.

$$PCHMI = THMI/HHS \text{ --------------------------------------- (1)}$$
$$MPCHMI = TPCHMI/TNR \text{ --------------------------------- (2)}$$
$$PL = 2/3 * MPCHMI \text{ --- (4)}$$

Where:
PCHI = Per Capita Household Monthly Income
THMI = Total Household Monthly Income
HHS = Household Size
MPCHMI = Mean Per Capita Households Monthly Income
TNR = Total Number of Respondent
TPCHMI = Total Per Capita Households Monthly Income
PL = Poverty Line

FGT Poverty Index:

Following de Janvry et al. (2005), FGT poverty index developed by Foster et al. (1984) was adopted to measure the extent of poverty among rural farming households. The FGT poverty index is given by:

$$P\alpha = 1/n \ \Sigma(z - y_i/z)^\alpha \ \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots \ (5)$$

Where;
P = Poverty index
n = total number of households in population
q = the number of poor households
z = the poverty line for the household
y_i = household income
α = Poverty aversion parameter and takes on value 0, 1, 2
$(z - y_i/z)^\alpha$ = Proportion shortfall in income below the poverty line.
α takes on value 0,1,2 to determine the type of poverty index.
When α = 0 in FGT, the expression reduces to

$$P_0 = (1/n) \text{ or } = (q/n) \ \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots \ (6)$$

This is called the Incidence of poverty, describing the proportion of the population that falls below the poverty line.
When α =1 in FGT, the expression reduces to

$$P_1 = 1/n \ \Sigma(z - y_i/z)^1 \ \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots. \ (7)$$

and this is called the Poverty depth
When α =2 in FGT, the expression becomes

$$P_2 = 1/n \ \Sigma(z - y_i/z)^2 \ \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots.. \ (8)$$

Table 1: Socio-economic characteristics of the respondents

Variables	Frequency	Percentage	Mean	Standard deviation
Age				
≤ 40	34	56.7		
41-40	20	33.3		
51-60	6	10		
Total	**60**	**100**	**42.1**	**6.1**
Experience				
3-6	37	61.7		
7-10	20	33.3		
≥ 11	3	5		
Total	**60**	**100**	**6.8**	**3.0**
Educational status				
Informal	31	51.7		
Primary	8	13.3		
Secondary	10	16.7		
Tertiary	11	18.3		
Total	**60**	**100**		
Gender				
Male	50	83.3		
Female	10	16.7		
Total	**60**	**100**		
Marital status				
Married	54	90		
Unmarried	6	10		
Total	**60**	**100**		
Household size				
≤ 3	11	18.3		
4-6	37	61.7		
7-9	11	18.3		
10-12	1	1.7		
Total	**60**	**100**	**5**	**1.7**
Access to credit				
Yes	15	25		
No	45	75		
Total	**60**	**100**		
Co-operative member				
Yes	17	28.3		
No	43	71.7		
Total	**60**	**100**		
Occupational status				
Farming (only)	17	28.3		
Both Farming & Others	43	71.7		
Total	**60**	**100**		
Farm size				
≤ 2	43	71.7		
3-4	13	21.7		
5	4	6.6		
Total	**60**	**100**	**2.1**	**1.2**

Source: Field survey, 2014

This is called Poverty Severity Index. This index weighs the poverty of the poorest household more heavily than those just slightly below the poverty line. It adds to the poverty depth an element of unequal distribution of the poorest household's income below the poverty line.

RESULTS AND DISCUSSION

Socio-economic Characteristics of the Farming Households

Table 1 presents the distribution socio-economic

Table 2a: Poverty Line Construction frame

Items	Estimates
Average monthly income	₦1543.75
PCHHMI	₦301.71
MPCHHMI	₦332.21
2/3 MPCHHMI (Poverty line)	₦221.47

Source: Authors computation, 2014

Table 2b: Classification of livelihood status

Livelihood status	Frequency	Percentage
Non-poor	38	63.3
Moderately poor	21	35
Core poor	1	1.7
Total	**60**	**100**

Source: Field survey, 2014

Table 2c: Vulnerability estimates

Vulnerability status	Frequency	Percentage
Not vulnerable	26	68.4
Vulnerable	12	31.6
Total	**38**	**100**

characteristics of rural households socio-economic. The household characteristics described include age, household size, gender, educational status, occupation status, marital status, experience and access to credit. Most of the rural household heads were between ages 30-54 years with only a few above 60 years of age. The mean age of household heads stood at 42.1 years, implying that majority of the respondents were in their active working age with adequate farming experience. Almost half of household heads were literate with one form of education or the other while half of the respondents had no formal education with male been the dominant household heads, which is in accordance with the norms and customs. Also, majority of the household heads were male, married and had an average household size of 2 members. Contrarily to the *apriori* expectation, majority of the respondents had no access to credit and had no co-operative membership. Furthermore, less than two-fifths of the respondents were engaged in farming as their primary occupation and are marginal and small scale-holders.

households (Mukherjee and Benson 2003). There is no clear consensus in the literature about when a household or an individual should be defined as poor. Lipton (1983) and Levy (1991) used expenditure approach but Ruben and van den Berg (2001), Yunez-Nuade and Taylor (2001) used income approach. The poverty line set for the study follows income poverty line measure. The relative poverty line was thus defined based on total monthly income for the households. The poverty line constructed for the farming household per month stood at ₦221.47, that is, the poverty line defined as two-thirds of the mean per capita household monthly income of the total households stood at ₦221.47. This implies that a household whose per-capita monthly income was below ₦221.47 was classified as poor while a household whose per-capita expenditure equaled or above this amount was classified as non-poor. Hence households were classified as being moderately poor if their mean per capita monthly income was below ₦ 221.47, and core poor if it was below ₦110.74 (Table 2a, 2b and 2c).

Construction of Poverty line

The poverty line is that level of welfare which distinguishes poor households from non-poor

Farming households poverty status/poverty profile

The degree of poverty among the rural farming household was assessed using the three poverty

Table 3: Poverty profile among the farming household

Poverty parameters (Index)	Estimates	Percentage	Amount requirement
Poverty incidence (P_0)	0.3667	36.67	
Poverty depth (P_1)	0.18	18	₦39.86
Poverty depth (P_2)	0.091	9.1	

Source: Field survey, 2014

indices: poverty incidence (P_0), poverty depth of (P_1), and poverty severity (P_2), following the Foster, Greer and Thorbecke poverty measure. Incidence of poverty indicate the percentage of the households falling below the poverty line; poverty depth shows the amount by which the poor fall short of the poverty line and severity of poverty is the sum of the square of poverty depth divided by the number of poor households in the sample. The poverty profile of rural households in Shiroro LGA is presented in Table 3. The head count index of poverty incidence showed that 36.67 percent of the rural farming households were poor, while the poverty gap/depth which measures the extent by which poor households were below the poverty line was 0.18. This implies that on the average, a poor household will require ₦39.86 to exit from poverty. The poverty severity measures the distance of each person to another. Among the individual farming households the distance is 0.09 which indicates high inequality in poverty status distribution of the rural farming household. The severity of poverty index represents the poorest among the poor farm households who require the attention of policy maker in the distribution of the standard of living indicators, such as health care services, clean water and income generating activities. Meanwhile, available national statistics put the poverty incidence in Nigeria and Niger State in 2012 at 60% and 30% respectively (FAO, 2012). Comparing these statistics, it shows that the poverty incidence obtained for farm households sampled for this study in Niger state (36.7%) is much lesser than that of Nigeria but fairly above the FAO statistics obtained for Niger State. This finding indicates an increase in the poverty rate in the state by 6.7%.

Assessment of Poverty Status across Socio-economic correlates of Farming Households

In table 4, the poverty status of households was further disaggregated by age, experience, gender, marital status, occupational status, educational status, co-operative membership, farm size and household size as follows: Contrary to *a priori* expectations, households whose heads age was less or equal to 50 had the highest incidence, depth and severity of poverty. Household heads within this age group are in their economic active age and are consequently expected to be more food secure than those in other age groups.

However a likely reason for the high incidence of poverty within this age group is that these households are fairly large in size with a high dependency ratio. On the other hand, households whose heads were aged 51 years and above had the lowest poverty status indices. This could be as a result of the fact that these households are small sized and depend mainly on remittances for their upkeep.

The disaggregation by farming experience, revealed a negative relationship between farming experience and poverty. In other words, household poverty decreased as farming experience increased.

Households head with equal to eleven and more farming experience had the lowest poverty incidence (0.033), depth (0.017) and severity of poverty (0.008), while households head with farming experience of 3-6 had the highest poverty incidence (0.184), depth (0.082) and severity of poverty (0.038) respectively followed by households heads with farming experience between 7-10. The impact of more years of farming experience is such that it increases the per-capita income of the farming household thereby lessening poverty status in those households. The educational status profile showed that households whose heads had no formal education had the highest poverty incidence and depth of 0.26 and 0.13 respectively and will require ₦28.79 on the average to be non-poor. However, households whose heads had tertiary education had the lowest incidence (0.03) and poverty depth of (0.02). The poverty severity index also revealed the highest and lowest level of inequality in poverty status distribution among households whose heads had no formal education and tertiary education respectively. This result agrees with the findings of Abimbola and Adejare (2013) in which household heads with tertiary education were the most food secure. With respect to gender, the result showed that male-headed farming households had higher incidence (0.317) of poverty when compared with their female counterparts (0.05). The poverty depth and severity indices further buttress this fact. While a male headed farming household on the average requires ₦70.21 to exit from poverty, a female headed farming household on the other hand would require ₦11.07. The food severity index also reveals a higher level of inequality in poverty status distribution among male-headed households than female-headed households. The marital status distributions revealed that farming household with married heads were poor than those with single heads.

Table 4: Extent and Level of Poverty across socio-economic correlates of farming households

Profile	Incidence (F_0)	Depth (F_1)	Severity (F_2)
Socio-economic variables			
Age			
≤ 40	0.167	0.080	0.0408
41-50	0.133	0.068	0.036
51-60	0.067	0.032	0.014
Total	**0.367**	**0.18**	**0.091**
Farming Experience			
3-6	0.184	0.082	0.038
7-9	0.15	0.081	0.045
≥ 11	0.033	0.017	0.008
Total	**0.367**	**0.18**	**0.09**
Educational status			
Informal	0.267	0.128	0.065
Primary	0.05	0.024	0.0122
Secondary	0.017	0.008	0.0042
Tertiary	0.033	0.0168	0.0092
Total	**0.367**	**0.18**	**0.091**
Gender			
Male	0.317	0.149	0.074
Female	0.05	0.029	0.017
Total	**0.367**	**0.18**	**0.091**
Marital status			
Married	0.350	0.165	0.083
Unmarried	0.0166	0.0118	0.0083
Total	**0.367**	**0.18**	**0.091**
Household size			
1-3	Non-poor	Non-poor	Non-poor
4-6	0.267	0.120	0.058
7-9	0.083	0.049	0.029
10-12	0.0167	0.0083	0.0042
Total	**0.367**	**0.18**	**0.091**
Access to credit			
Yes	0.067	0.032	0.016
No	0.30	0.145	0.075
Total	**0.367**	**0.18**	**0.91**
Co-operative membership			
Yes	0.083	0.0388	0.0195
No	0.284	0.138	0.071
Total	**0.367**	**0.18**	**0.091**
Occupational status			
Farming (full-time)	0.037	0.018	0.0103
Both farming & others	0.33	0.159	0.0802
Total	**0.367**	**0.18**	**0.091**
Farm size			
≤ 2	0.28	0.138	0.071
3-4	0.069	0.0318	0.016
5	0.018	0.0077	0.0035
Total	**0.367**	**0.18**	**0.091**

Source: Field survey, 2014

This could be attributed to the fact that married household heads have dependents and are likely to have larger household sizes when compared to single household heads. The poverty depth of 0.167 means that married household heads on the average would require ₦36.99 to get to the level of poverty line while single household heads would require only ₦2.61 to get to the same level. The poverty severity index of 0.094 also reveals a higher level of inequality in poverty status distribution among married household heads than single

headed households in the study area.

Contrary to *a priori* expectation household size, revealed a negative relationship between household size and poverty status. In other words, household poverty decreased as household size increased. This is due to the fact that the excess family labour is released for hired labour which in turn brings in returns, thereby increasing the household income. Households with less than or equal to three members are above poverty line while household with more than three members fall below poverty status. The effect of large family size is such that it increases the per-capita income of the farm family thereby assuaging poverty in those household. The profile of access to credit showed that household heads with access to credit had the lowest poverty incidence and depth of 0.07 and 0.03 respectively and will require ₦7.05 on the average to be non-poor. Furthermore, the poverty severity index indicates minimal disparity among farming household with access to credit compared with household that had no access to credit which is on the high side. This is expected as in increased as increased access to capital would help in increasing their productivity which will invariably enhance their purchasing power, thereby improving their standard of living. The co-operative membership status profile showed that households whose heads are non-member of co-operative societies had the highest poverty incidence and depth of 0.28 and 0.14 respectively and will require ₦31 on the average to be non-poor. Furthermore, the poverty severity index revealed the highest and lowest level of inequality in poverty status distribution among households whose heads had co-operative membership and non-membership tertiary respectively. Highlights of the occupational distribution showed a low incidence of poverty among households heads primarily engaged (full-time) in agriculture than those engaged in both farming and non-farming activities. This implies that farming households were better off than non-farming households. This is contrary to the expectation, that agriculture in the rural areas of Nigeria is largely characterized by low capital involvement, use of crude implements, poor infrastructural and storage facilities and human drudgery. The poverty gap and severity indices followed the same pattern. The farm size profile revealed a negative relationship between farm size and poverty. In other words, household poverty decreased as farm size increased. Households head with farm size of equal to five and more had the lowest poverty incidence (0.016), depth (0.0077) and poverty severity of (0.0035), while households head with farm size of 1-2 had the highest poverty incidence (0.28), depth (0.138) and severity of poverty (0.071) respectively, followed by households heads with farm size between 3-4. The effect of more farm size is such that it increases the per-capita income of the farming household thereby

lessening poverty status in those household. This is expected as increased farm size leads to increase output, thus invariably enhancing their purchasing power thereby improving their standard of living.

CONCLUSION AND RECOMMENDATION

The study showed that there is low level of literacy among rural farm households' members and the incidence of poverty was very high among them but the severity is felt more among aged household heads and households with small farm size. Despite that rural farm households rely strongly on farm income sources still 71.7 percent of their total income is from non-farm income sources with incidence of high poverty level.

Based on the findings of the study, the following recommendations geared towards ensuring food security during this period are made:

• At the policy level, major attention should be given to education and birth control as poverty alleviation strategies in rural setting.

• Aids and subsidized inputs should be provided for rural farm households to improve agriculture since they are mainly involved in farming and have the lowest percentage of their income from farming activities.

• Access to higher return from non-farm jobs should be encouraged to boost their income but not at the expense of farm productivity because rural farm households are the food basket of the nation, therefore policies that will develop and promote input-intensive agricultural technologies in enhancing agricultural yields and reducing labour demands for production will go a long way.

REFERENCES

Abimbola OA, Kayode AA (2013). Food Insecurity Status of Rural Households during the Post-planting Season in Nigeria. J. Agric. Sustainabil. 4(1):16-3

Adepoju AO, Yusuf SA (2012). Poverty and Vulnerability in Rural South-West Nigeria. ARPN J. Agric. Biolog. Sci., 7(6):430-437

Adewunmi OI, Adesimi B, Ezekiel OA (2011). Non-farm Activities and Poverty among Rural Farm Households in Yewa Division of Ogun State. J. Soc. Sci., 26(3):217-224

Alayande, B.A. (2003). Vulnerability assessment: Some evidence from Nigeria. A World Bank Commissioned Study. *Unpublished zero draft report*

Alayande B, Alayande O (2004). A quantitative and qualitative assessment of vulnerability to poverty in Nigeria: A paper submitted for presentation at the CSAE conference on poverty reduction, growth and human development in Africa, March.

Bidani B, Richter K (2001). Household vulnerability and the Asian crisis: The case of Thailand. Draft report. The World

Bank, Washington, D.C.

Chaudhuri S (2000). Empirical methods for assessing household vulnerability to poverty. Mimeo School of International and Public Affairs, Columbia University, New York. March.

Chaudhuri S, Jalan J, Suryahadi A (2002). Assessing household vulnerability to poverty from cross-sectional data: A methodology and estimates from Indonesia. Discussion Paper 0102-52, Department of Economics, Columbia University, USA.

Christiaensen, L. and Subbarao, K. (2004). Toward an understanding of household vulnerability in rural Kenya. World Bank Policy Research Working Paper 3326.

De Janvry A, Sadoulet E, Zhu N (2005). The role of nonfarm incomes in reducing poverty and inequality in China. CUDARE working paper 1001, Berkeley: University of California.

Federal Office of Statistics (1999). Poverty and Agricultural Sector in Nigeria. Poverty Incidence of Farmers by Region. Federal Office of Statistics, Abuja.

Foster J, Oreere J, Thorbecke F (1984). A class of decomposable poverty measures. Econometrica, 52 (3): 761-6.

Gaiha R, Imai K, Woojun K (2007). Vulnerability and poverty dynamics in Vietnam. Economics Discussion paper No. 0708.

Günther I. and Harttgen K. (2006). Households vulnerability to covariate and idiosyncratic shocks. Preliminary Draft.

Jamal H (2009). Assessing vulnerability to poverty: Evidence from Pakistan. Social Policy and Development Center (SPDC), Pakistan.

Kasirye I (2007). Vulnerability and poverty dynamics in Uganda, 1992-1999. MPRA Paper No. 8557.

McCulloch N, Calandrino M (2002). Poverty dynamics in rural Sichuan between 1991 and 1995. Institute of Development Studies, Working Paper 151, Brighton.

National Bureau of Statistics (2005). Poverty profile for Nigeria: Nigerian Bureau of Statistics Abuja, Nigeria.

National Bureau of Statistics (2008). Poverty profile for Nigeria. Nigerian bureau of statistics. Abuja, Nigeria.

Omonona BT (2011). Poverty and its correlates among rural farming households in Kogi State, Nigeria. Unpublished PhD thesis. Department of Agricultural Economics, University of Ibadan.

Oni, O. A. and Yusuf, S.A. (2008). Determinants of expected poverty among rural households in Nigeria. AERC Research Report 183, September.

Prichett L, Suryahadi A, Sumarto S (2000). Quantifying vulnerability to poverty: A proposed measure, applied to Indonesia. Policy Research Working Paper No. 2437. The World Bank, Washington. D.C., September.

Quisumbing A (2002). Consumption smoothing, vulnerability and poverty in rural Bangladesh. International Food Policy Research Institute, Washington, D.C. Preliminary Draft.

Schiller, B.R. (1980). The economics of poverty and discrimination. New Jersey: Prentice Hall International Inc. Englewood Cliff.

Schubert R (1994). Poverty in developing countries: Its definition, extent and implication. Economics, 49/50: 17- 40.

Skoufias E (2002). Measuring Household Vulnerability to Risk. Some estimates from Russia. International Food Policy Research Institute, Washington, D.C.

United Nations University (2008). United Nations University, Research Brief Nos. 2.

World Bank (1999). Understanding and responding to poverty. Retrieved February, 2011. Available from: http://www.WorldBank.org/Poverty/Mission.