Poverty Status of Farm Households in Selected Local Governent Areas of Niger State, Nigeria

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Authors' contributions

This work was carried out in collaboration between all authors. Author HS designed the study, wrote the proposal, performed the data analyses and wrote the final draft of the manuscript. Authors LT and JNN managed the literature searches and edited the manuscript, while author AAAC participated in data collection and processing. All authors read and approved the final manuscript.

Original Research Article

ABSTRACT

Poverty incidence in Nigeria is higher among the rural-folks, that is, households that rely mainly on fundamentally on agricultural income. This study investigated poverty status of farm households in selected Local Government areas of Niger State, Nigeria. The study utilized data obtained from administering questionnaire to 287 farming households. Data were analyzed using descriptive statistics, and Foster-Greer and Thorbecke poverty index (FGT). The study revealed that mean age, household size, and farm size of the respondents were 42, 7, and 2.82 respectively. A total of 46.4% of the respondents had no formal education and only 12.9% had attained formal education up to the tertiary level. Majority, i.e 94.8% had no access to credit. Results of the Foster-Greer and Thorbecke poverty index analysis revealed that 25.1% of the respondents were poor with 0.56 and 0.37 as their poverty depth and severity respectively. The study recommend that the minimum cost

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of eliminating poverty using targeted transfers with poverty gap index should be one of the yard stick use for conditional money transfer by the Millennium Development Goals office which will serve as savings to the poverty alleviation budget.

1. INTRODUCTION

Nigerian Government efforts at poverty reduction have not yielded the desired results as expected. The Human Development Index Report for 2013 ranked Nigeria 153rd poorest out of 186 poorest countries in the world [1]. Evidence in literature [2,3,4], shows clearly that poverty incidence in Nigeria is higher among the rural-folks, that is, households that rely mainly on agricultural income.

The poverty situation in Nigeria is quite disturbing. Both the quantitative and qualitative measurements attest to the growing incidence and depth of poverty in the Country [5,6]. The poor in Nigeria live in abject condition due to their low level of income with children under 5 years mortality rate of 124 in 2012 while life expectancy at birth in the country (52 years in 2012) is the 17th lowest globally [7]. This situation however, presents a paradox considering the vast human and physical resources that the country is endowed with. It is even more disturbing that despite the huge human and material resources that have been devoted to poverty reduction by successive governments, actual evidence suggests that the depth and severity of poverty is still at its worst in Nigeria, Sub-Saharan African and Asia [8,9,10].

[11] defined poverty as the inability of a person to acquire the empowerment needed to substantively control the challenges of the environment. Stemming from this, [12] opined that people are poor when they lack the tools and capacity to subdue their environment or when they lack empowerment in tools and new techniques, innovations, management skills and ideas, and economic participation. Nigeria is one of the most resource-endowed nations in the world. But socio economically, Nigerians are also among the poorest in the world [13]. Hence, there is a persisting paradox of a rich country inhabited by poor people, which has been the subject of great concern for many years, but more especially in the last decade. [14] revealed that urban poverty rate is 27% and rural poverty rate is 73% in Nigeria. Incidentally, the rural sector is the predominant sector in the Nigerian economy. It plays some fundamental roles, which include job creation at relatively low unit costs, and thus remains the most important growth priority of the country. Some of the factors which help in perpetuating poverty in the country are inadequate rural infrastructure that limits income-earning opportunities, environmental and land degradation problem, bad macroeconomic policy leading to market imperfection, low productivity of the farmers and political instability have been identified as major causes of poverty in Nigeria. These factors contribute to reducing the income of an average household thereby perpetuating the poverty cycle [15].

The traditional approach of a poverty index is based on headcount of poor individuals below the specified cut-off point, that is, the proportion of the population whose standard of living is less than the poverty line to the number of individuals or households. However, the headcount index does not indicate the depth of poverty, that is, how poor the individuals/households are, hence, the evolution of the poverty gap index. Poverty gap index is the ratio of the average extra consumption that would be required to bring all poor people or households up to the poverty line. The poverty gap is interpreted as measuring the depth of poverty. The squared poverty gap index takes into account not only the consumption shortfall of the poor from the poverty line, but also inequality among the poor. This measure decreases if, for example, income is transferred from a poor individual to a poorer individual. The squared poverty gap index is often interpreted as measuring the severity of poverty. The Foster-Greer and Thorbecke (FGT) class of poverty measures has some desirable properties (such as additive decomposability), and they include some widely used poverty measures such as the head-count and the poverty gap measures. [16] defined poverty line using three measures: first on the basis of a dollar per day (i.e. ₦58,400) per annum regarded as the international poverty line (IPL); second on the basis of national minimum wage (i.e. ₦216,000) per annum regarded as national poverty line (NPL) and then on the basis average income of the families involved in the

study (i.e. ₦584,267.56) per annum regarded as community poverty line (CPL), to identified poverty incidences in Niger and Kogi States using FGT, the measures indicated that poverty incidences were 2.78%, 30.19%, and 66.30% respectively. In line with this, [17] identified poor farmers in Ogun State on the basis of income-based poverty line measure using FGT, the measures indicated that poverty incidence, poverty depth, and severity of poverty are 25.3%, 23.3% and 21.5%, respectively.

Apart from death due to starvation and other health hazards that the poor people are daily faced with, poverty induced hunger and malnutrition are known to impair Intelligence Quotient (IQ) development in children, leading to large loss in quality of life, and contributes to the declining productivity and poor economic growth in developing countries like Nigeria [18,17]. Evidences abound that among the rural poor, the farming households are poorer. It was for these and many other reasons that poverty reduction was made the first among the Millennium Development Goals (MDGs) adopted by world leaders in September 2000.

The study will contribute in the design of anti-poverty initiatives in Niger State, where the majority of the population remain poor [19]. The results could also serve as basis for evaluating previous policies by the government and other non-governmental interventions. The objectives of this study were to describe the socio-economic characteristics of the farm households, and ascertained the poverty status of the farm households.

2. MATERIALS AND METHODS

The study was conducted in selected Local Government Areas in Niger State of Nigeria. It is one of the 36 States of Nigeria, created out of the defunct North Western State on 3rd February, 1976. Situated in the North central geo-political Zone, the State shares its borders with Zamfara State (North), Kebbi State (North West), Kogi State (South), Kwara (South West), Kaduna (North East) and the FCT (South East). The location of the State is between Latitudes 8º 20[1] and 11º 30[1] North of the Equator and also between Longitudes 3º 30[1] and 7º 20[1] East of the Greenwich Meridian. The provisional result of the 2006 National Population Census shows that the State has a population of 3,950,249 [20]. Going by the population growth rate in Nigeria of 2.5% [21], the population of the State was projected to 4,695,604 as at 2013. The State comprises 25 Local Government Areas grouped into three agricultural Zones: I, II, III, with each zone having 8, 9 and 8 Local Government Areas (LGAs) respectively. There are three major ethnic groups in the State, *Nupes, Gbagyi*, and *Hausa.* Other tribes are *Kadara, Koro, Dibo, Kambari, Kakanda, Dukkawa, Dakarkari, Gana-Gana, Kamuku*, etc.

Niger State covers a total land area of 83,266,779 kilometres or about 8.3 million hectares which represent 8% of the total land area of Nigeria. About 85% of the land is arable; the vegetation consists mainly of short and scattered trees. Soils are predominately light and well drained. The State experiences distinct dry and wet seasons with annual rainfall varying from 1,100 mm in the Northern part to 1,600 mm in the southern parts. The temperature ranges from 23ºC to 37ºC and daylight duration is averagely 8.5 hours and it has a relative humidity of 40%. The major economic activity is agriculture (farming, fishing and livestock rearing).

Multi-stage sampling technique was employed in the collection of primary data for this study. In the first stage, one Local Government Area was randomly selected from each of the three agricultural zones namely, Zones I, II and III respectively. In the second stage, one community each was randomly selected from the selected LGAs, giving a total of 3 communities. In the third stage, sampling of farm households in each community was determined proportionately using [22] formula and adopted by [23].

$$n = \frac{N}{1+N(e)^2} \tag{1}$$

Where:

n = sample size,
N = finite population,
e = limit of tolerable error (level of significance = 0.05) and
1 = constant.

Data were collected using structured questionnaire and very good responses were given. Data for this study was analyzed using descriptive statistics such as means, frequency, standard deviation, and Foster-Greer and Thorbecke (FGT) poverty index. The respondents were disaggregated into poor and non-poor categories. It has become customary to use the so-called Pα measures in analyzing poverty. The measures relates to different

dimensions of the incidence of poverty P_0, P_1, and P_2 were used for head count (incidence), depth and severity of poverty respectively. The three measures were based on a single formula but each index puts different weights on the degree to which a household or individual falls below the poverty line. The mathematical formulation of poverty measurements as derived from [24] is estimated as:

$$P_\alpha = \frac{1}{N} \sum_{i=1}^{q} \left[\frac{Z_1 - Y_1}{Z_1} \right]^\alpha \qquad (2)$$

Where,

P_α = the weighted poverty index for the ith sub-group,

α = Foster-Greer- Thorbecke (FGT) index and takes on the values of 0, 1 and 2 for incidence, depth and severity of poverty measures respectively,

Z_1 = the poverty line for ith sub-group,

q = the number of individuals below the poverty line,

N = the total number of individuals in the reference population,

Y_{ij} = the income of household j in the sub-group i,

$Z_1 - Y_{ij}$ = poverty gap of the ith household and

$\frac{Z_1 - Y_{ij}}{Z_1}$ = poverty gap ratio.

The quantity in bracket is the proportionate shortfall of income below the poverty line.

$\frac{q}{n}$ = the proportion of the population that falls below the poverty line.

This is called the head count or incidence of poverty.

If $\alpha = 0$, then FGT measures the incidence of poverty,

If $\alpha = 1$, then FGT measures the depth of poverty and

If $\alpha = 2$, then FGT measures the severity of poverty.

In this study, the poverty status was defined on the basis of accrued income of the family, as a result, poverty line was defined on the basis of average income of the families per annum regarded as Community Poverty Line (CPL), following [24,25,26]. Estimation of poverty based on the FGT index was then used to disaggregate households into poor and non-poor categories.

3. RESULTS AND DISCUSSION

3.1 Socio-economic Characteristics of Farm Households in Niger State

Table 1 presents the socio-economic characteristics of the respondents which revealed that the average age of the respondents was 42 years. Most of the respondents are within the age range of 30-49 years and accounted for 69% while only a few of those surveyed are either too young or too old to engage in one activity or the other in the study area representing 7% and 8.7% respectively. The distribution of respondents by household size presented in Table 1 shows that majority of the respondents have family sizes ranging from 1-10 which accounted for 79.5%, and only 20.4% of the respondents had over 10 persons per household. From the analysis, household size in the study area is fairly large with an average of 7 members.

Distribution of respondents by farming experience as depicted in Table 1 shows that most of the respondents had 21-30 years of farming experience accounting for 40.4%, with an average of 26 years of experience. The results further revealed that 55.80% of the respondents had farm sizes ranging between 0.5-4.0 hectares, while 44.2% had above 4 hectares and a typical respondent had 2.82 hectares. This implies that most respondents are subsistence-oriented farmers. In terms of gender, Table 1 revealed that an overwhelming majority of the household heads were male representing 95.50%. This is an indication that the males dominated agricultural activities. This agrees with the findings of [27] who revealed that the males dominated the work force in Nigeria's agricultural communities.

Results in Table 1 further revealed that majority of the respondents accounting for 85% acquired their land through inheritance which encouraged farmland fragmentation. In terms of level of education, 16.4% of the household heads had no formal education, 30% had Quranic education, and only 12.9% had tertiary education in the study area. It can be seen that the literacy level of farm households in the study area was relatively low. This is in line with the findings of [28] who pointed out that there is a low level of education among the rural farming households and this has implications for their income-earning capacity as the respondents may lack the required skill to secure well paid jobs.

Table 1. Distribution of respondents according to socio-economic characteristics. N=287

Variables	Frequency	Percentage	Mean (standard dev.)
Age			
<30	20	7.00	
30-39	88	30.70	
40-49	110	38.30	
50-59	44	15.30	
>59	25	8.70	42(10.5)
Household size			
1-5	134	46.70	
6-10	94	32.80	
11-15	40	13.90	
>15	19	6.50	7(4.8)
Years of experience			
<11	16	5.60	
11-20	85	29.60	
21-30	116	40.40	
31-40	49	17.10	
> 40	21	7.30	26(10.7)
Farm size (hectares)			
0.5-2.0	96	33.50	
2.5-4.0	64	22.30	
4.5-6.0	78	27.20	
>6.0	49	17.00	2.8(2.4)
Gender			
Male	274	95.50	
Female	13	4.50	
Mode of acquiring land			
Owned	26	9.10	
Rented	12	4.20	
Inherited	244	85.00	
Leasehold	5	1.70	
Educational level			
None	47	16.40	
Quranic	86	30.00	
Primary	70	24.40	
Secondary	47	16.40	
College of education	20	7.00	
College of health technology	3	1.00	
Polytechnic	6	2.10	
University	8	2.80	
Credit accessibility			
No	272	94.80	
Yes	15	5.20	
Extension contact			
No	177	61.70	
Yes	110	38.30	
Total	287	100	

Source: Field survey, 2014

Also, farmers may find it difficult to adopt modern improved techniques of production or operations because of their lack of education. Education enhances the technical competence and entrepreneurial spirit. Result in Table 1 further indicated that most respondents in the target population (94.80%) had no access to agricultural loan. It implies that only 5.20% of the respondents had access to loan. Acquisition of additional capital enables farm households procures production inputs such as fertilizers, agrochemicals and to hire additional labour.

Agricultural credit also has the propensity to break the vicious cycle of poverty and raise the purchasing power of farm households who over rely on meagre household resources. The results also revealed that 61.7% had no access to extension services and only 38.3% had access to extension services. This implies that majority of the farm households in the study area had no access to innovations that probably would have increased their agricultural output so as to increase their total income.

The poverty profile of the farming households is presented in Table 2. Farm households were categorized into poor and non-poor. The poverty head count or incidence (P_0), poverty gap or depth (P_1), and squared poverty gap or severity (P_2) were also calculated and the results are presented in Table 2. The mean income of all farm households was ₦986, 924.70 per annum. The relative poverty line was thus defined based on the average income of the farmers. The poverty line is an income-based threshold line that divides the poor and the non-poor farm households in the study area was checked using three different methods of determining poverty line. The value of the poverty line is ₦493, 462.35 per annum using the community poverty line (CPL), instead of International and National poverty line; this is because their income is above the International Poverty Line (IPL) of ₦72, 000.00 per annum using $1.25 per day at ₦160 exchange rate as at 2014 and National Poverty Line (NPL) of ₦ 216,000 respectively following [29]. Consequently, farmers that earned less than half the average income or that earned incomes, which fell below 50% of the mean income, were considered to be poor. This was used by similar studies in Nigeria [30,31,32]. The P_0 for the entire households was 0.251. This means that 25% of the respondents were poor, while 74.9% were non poor. The poverty gap index (P_1) usually referred to as the depth of an average poor person from the poverty line was 0.56. This implies that 56% of the poverty line (₦493, 462.35) i.e ₦ 276, 338.92 was required to bring an average poor person in the study area to the poverty line. This is the minimum cost of eliminating poverty (relative to the poverty line), this shows the amount that could be transferred to the poor to bring their income up to the poverty line. Government would have spent far more than this in the aim of poverty reduction. Thus, this measure is an indicator of the potential savings to the poverty alleviation budget. The poverty index (P_2) which measures the distance of each poor person to one another was found to

be 0.37. This means that among the poor household heads, 37% were severely poor. This indicates that the poor household heads were not equally poor but they vary in their degree of poverty. This estimate is comparable to 25.3% obtained for rural residents surveyed in Ogun State based on the income-poverty line measure [33].

Table 2. Poverty status of household heads

Poverty status		Frequency	Percentage
Non-poor		215	74.90
Poor		72	25.10
Total		**287**	**100.00**
FGT indices	Head count	Poverty depth	Poverty severity
Value	0.25	0.56	0.37

Source: Field survey, 2014

4. CONCLUSION

Despite several efforts by government to eradicate poverty in the country, going by the empirical evidence emanating from this study, the study concluded that poverty still exist among farming households in the study area. The poverty gap which is a measure of the poverty deficit of the entire population was 0.56 that is, 56% of the poverty line (i.e ₦ 276, 338.92) was required to bring an average poor person in the study area to the poverty line which is the minimum cost of eliminating poverty relative to the poverty line. The poverty severity takes in to account not only the distance separating the poor from the poverty line, but also the inequality among the poor. The study recommend that the minimum cost of eliminating poverty using targeted transfers with poverty gap index should be one of the yard stick use for conditional money transfer by the Millennium Development Goals office which will serve as a policy option that can assist in alleviating poverty, and also serve as savings to the poverty alleviation budget.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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