

Multidimensional Poverty Assessments in Rural Farm Household, South-West of Nigeria: Evidence form Oyo State Farm Settlements

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Abstract

Various Nigerian successive governments have recognized the need to tame poverty. This prompted varieties of anti-poverty poverty programmes, but unfortunately poverty situation is still at alarming rate, especially in the rural domains. It is on this note, that this study argued for the need to measure poverty in a multidimensional manner, as against the commonly monetary poverty measurements. Primary data from farm household was used for collection of information for the study. Alkire and Foster methods was used for the headcounts ratios, adjustment headcounts as well as poverty intensity. Probit regression was employed to assess variables that predict poverty in the study areas. Results of the study showed that about 82% are multidimensionally poor, while money-metric poor are about 86%. Major determinants of multidimensional poverty include age of the respondents, marital status, income, number of dependants and household head farming experience. The study concluded that to alleviate rural poverty, potential vulnerable categories of people (as shown in the deprivation incidence) should be given the deserved attention as to reduce poverty eventually.

Keywords: Poverty assessments; Farm household; Multidimensional; Marital status

Introduction

Globally poverty has been a phenomenon of concern. Little wonder the millennium development goal (MDGs) purposively highlighted eight international goals, of which eradication of extreme poverty and hunger top the list. In the developing countries, poverty has been adjudged to be on increasing trend [1]. Poverty holds sway, amidst of plenty, a scenario described in Nigeria's political vocabulary as a 'mystifying' paradox (i.e. rich country, poor people). Various parameters of measurements of poverty described Nigeria as a poor country even among the committee of states. Going into the memory lane, Garba [2] showed that in 1960, when Nigeria got her independent only about 15 per cent out of population of 42 million were poor according to United Nation estimates, this figure flung to 28 per cent in 1980 out of 147 million people. UNDP [3] submitted that Nigerian population in poverty was 68.7 million as at 2004, despite roaring GDP growth rates. Rural poverty in Nigeria is at endemic stage, where over 69 per cent are in acute poverty (NBS) [4] the pathetic of all, is that more than half of these poor are children. Unfortunately most of the studies on poverty in Nigeria in the past assessed poverty unidimensionally [5-7]. Advances in studies of poverty has revealed that monetary-based poverty assessments have some shortcomings, according to UNDP (1997) [8] uni-dimensionally poverty measurements does not reveal the in-depth of inadequacy of a person well-being, but will show part of the picture in terms of the many factors that has influence on individuals' level of well-being (e.g. longevity, good health, education, etc.). For instance, income-based poverty assessment assumes that market exist for all attributes of goods. It also assumes that prices predict the utility weights all households within a given domain assigned to these attributes in a given time. This assumption may not hold in all cases, especially in the developing countries where there is imperfect or out rightly unavailable markets for some goods (e.g. Public goods), which affect the welfare of an individual. It is therefore necessary to champion study that will look inward to examine other pertinent poverty variables, which will embrace a non-monetary attributes of a functioning well-being.

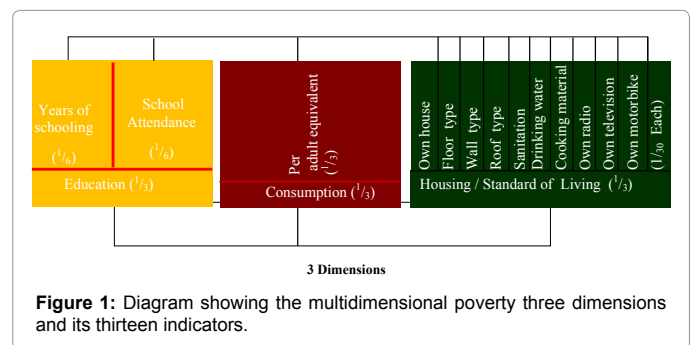


Figure 1: Diagram showing the multidimensional poverty three dimensions and its thirteen indicators.

Problem Statement

Regardless of myriad of anti-poverty programs by successive Nigerian government, poverty reduction still remain arduous task – which seems to mis- represent all previous poverty measures as a banalities efforts. While the high rate of poverty appears to cast doubts on the effect of previous anti-poverty measures, it could be camouflaged by the fact that potential dimensions are omitted. This is because previous studies in Nigeria have employed largely income-consumption based approach, which does not account for other necessary well-being variables. Hence, monetary – based anti-poverty policies were proffered. Little is known about the other welfare attributes. These uni-dimensional poverty measures, at best, only lead to partial understanding of poverty and often do not give holistic information about the poor especially in terms of other attributes. It

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therefore leads to partial knowledge of the problem since the different dimensions of poverty and the correlates are not known. Thus, in order to have a multifaceted approach to fighting poverty, there is need to carry out a multidimensional analysis of rural poverty in Nigeria.

Research Questions

The following are the research questions of the study:

1. What are the socio-economic characteristics of the poor?
2. Who are the poor multidimensional in the study area?
3. What are the categories of poverty in the study area?

Objectives of the Study

The broad objective of the study is to examine rural poverty in a multidimensional approach across non-monetary poverty dimensions in the Oyo state farm settlement.

The study specifically seeks to:

1. Examine the socio-economic characteristics of the respondents.
2. Investigate the poor multidimensional in the study area.
3. Establish categories of the poor in the study area.

Contribution to Knowledge

Previous literatures on poverty measurement in Nigeria hardly focus on multidimensional angle of poverty, even those that assessed poverty in multidimensional manner often focus on the urban poverty, notwithstanding categorization of the poor are conspicuously lacking in most of the poverty studies in Nigeria. This study made conscious effort to establish categories of the poor based on the non-monetary indicators of multidimensional poverty assessment approach. The beauty of this approach is that anti-poverty policies formulation will target each different layer of the rural poor unlike the “medicine for all cure” anti-poverty measures which leave much to desire.

Methodology

Description of the study area

Oyo state is located in the South-West geopolitical zone of Nigeria. It consist of 33 local government areas. The state covers a total of 27,249 square kilometres of land mass, it has an equatorial climate with dry and wet seasons and relatively high humidity. The climate in the state favours cultivation of crops like maize, yam, cassava, millet, plantain, cocoa tree, palm tree and cashew tree. Sampling of respondents was carried out in: Ijaye (Akinyele local government area), Akufo (Ido local Government area) and Ilora (Afijio local government area) farm settlements [9]. Interviewer-administered questionnaires were administered through trained enumerators to obtain data for the study. The unit of analysis is farm household; (an adult head of household) was questioned in Yoruba (one of the Nigerian local languages) in face-to-face interviews with trained enumerators in March-May, 2014. An adapted version of the survey modules used by Ataguba et al. [10] which was originally developed by a team of experts at the OPHI was used to cover the three chosen dimensions(i.e. education, consumption and housing/living, standard), Also the study employed 13 indicators for the study. Education indicators are: years of schooling, schooling attendance of school age child. Housing/standard of living

indicators are: owing a house, improved floor, wall, sanitation, cooking material drinking water; asset(television, radio and motor bike) and consumption indicators are: monthly consumption on household food and daily needs(this was converted to adult equivalent consumption). The dimensions and indicators chosen for the study follow Alkire and Foster [11,12] Alkire and Santos [13] Atanguba [10] millennium development goals (MDGs) and Nveeden and Islam [14] dimensions and indicators employed in their studies.

A multistage sampling technique was used to select households. To ensure adequate representation of both core-rural and semi-rural localities, the farm settlement was stratified into core-rural and semi-rural areas. Each community is classified as an Enumeration Area (EA). Because the predominantly core-rural of the farm settlement community makes up about 70% of the population of all the farm settlement (NBS) [15] a random sample of approximately 70% of the population was drawn from it. The remaining farm household heads were drawn randomly and evenly from three EAs in such a way as to ensure probability proportional to size (PPS). A total number of 410 questionnaires were distributed, 317 of them were usable. Data on, socio-economic characteristics of the farmers, education, housing/standard of living, asset and consumption were collected, as well as other relevant information. The study follows the work of Mack and Lansley [16] on socially perceived necessity (SPN) to find out from the respondents their opinion on their poverty status (Table 1).

The study employed methodology advanced by Alkire and Foster [11,12] in the assessment of multidimensional poverty in the developing countries. Both intersect and union cut-off methods were used, in the establishment of dimension and adjusted measures of dimensional poverty. The beauty of this method is the advantage of decomposability as well as dimensional monotonicity (Alkire and Foster) [12]. Remarkably, the methodology allows both generalized and equal weights for different dimensions.

The dimension adjusted headcount M_0 is obtained as $MPI = M_0 = H_0 \times A$ (1)

H_0 =percentage of people who are poor (it shows the proportion of who are in poverty); A is the average deprivations share people suffer at the same time (It show the intensity of people’s poverty).

M_0 can be written as $M_0 = \sum_{j=1}^d \mu(g^{0*}_j^{(k)}) / d$ where $g_j^{(k)}$ =the $g_j^{(k)}$

column of the censored matrix $g_0(k)$. The following categories of poverty were constructed (i) multidimensional poverty (poor1), (ii) education poverty (poor2), (iii) consumption poverty (poor3) and (iv) housing/living standard poverty (poor 4). In order to ascertain factors or variables that are associated with poor, Probit model was used to estimate the probability of being poor, for the multidimensional poor, education consumption and housing/living standard poor. The model is specified as

$$P(\text{poor}_{i=1}/x_i) = P(\text{poor}_i > 0) = P(x_i b + u_i > 0/x_i) = P(u_i > -x_i) = 1 - F(x_i) = 1 - F(x_{ib}) \quad (2)$$

Where $P(\text{poor}_{i=1}/x_i)$ is the probability that a person is poor given vector x_i of the observable characteristics. Here, the dependent variable

Dimension	% Regarding dimension as important
Education	77.40
Housing/living standard	75.34
Consumption	72.46

Table 1: Aggregated opinion of respondents on importance of each dimension.

for the above model is the computed head count (H_0) for the four types of poor. According to the poverty line chosen for each type of poor, any individual that is considered poor was assigned with value of zero and 1 otherwise. The study considered relevant socio-economic characteristics and individual variables as the vector of covariates. These are age, marital status, household head years of experience, number of dependent, household head main occupation, spouse main occupation, number of children and income (Table.1)

Results Presentation

Descriptive

As presented in Table 1 below, the average farm household in Afijio [9], Akinyele and Ido local government has 10 members. Also, households are mostly between ages 20 and 45(65.93%) followed by those within ages 46-71(31.23%), while household heads above 72 years are 2.84%. The bulk of the respondents are male (about 90%). On average, household has 9 dependents, out of which 5 are children. Farm household has 3.7 acres (about 1.5 ha) on average. A significant proportion of the respondents are married (about 85%), while the least of the respondents are widower (about 1.6%). Majority of the respondents are not educated (about 74%), while about 20% have primary education and about 5% are secondary school leavers. The rest of the respondents (about 1.3%) attended one form of tertiary institutions or the other. About 41 % school age children are in the school, while about 57% are not in the school. Most of the household heads (about 91%) engaged in agriculture as their main occupation, with about 26 years of farming experience. Spouses who engaged in agriculture (about 42%) as main occupation and non-agricultural occupation (40%) are almost in the same proportion. The remaining spouses (18%) are not involved in any occupation (Table2).

Table 3 presented incidence of deprivation across the indicators. The statistic showed that incidence of deprivations are generally high for (>70%) for drinking water, sanitation, cooking materials and roofing material and education attainment. Also there is a moderately high deprivations across (>50%) for motorbike ownership, floor, wall materials and school age attendance. A lower deprivations were observed (26-42%) for radio, television and house ownerships.

Multidimensional poverty

This section presents results of the analysed data. The study employed three dimensions, education, housing/standard of living and consumption, with thirteen indicators. Unit of analysis is farm household [19]. Here we considered a household to be poor dimensionally if it's not poor in 1out 3dimensions. That is a household is said not to be poor if it's poor in at least 1 out 3 dimensions (i.e. 33%). Alkire and Foster [12] and Ataguba [10] used at least 30% deprivations to determine poor multidimensionally as the cut-off value. However researchers are allowed to considered the best cut-off values (Table 4).

Table 4, below shows the percentage of the overall respondents that are multidimensionally poor. Statistics revealed that out of 317 respondents, 260(82.02%) respondents are multidimensional poor, while 57(17.98%) are non-poor. This means that 82% of the respondents is said to be poor in at least two of (education, housing/standard of living and consumption). Hence we can conclude that most of the respondents are poor multidimensionally.

Dimensional categorization of the poor

Table 4 showed dimensional breakdown of the dimensional poverty,

Variables	Mean
Number in household (size)	10.37
Daily consumption per adult equivalent (Naira)	156.37
Daily consumption per capita consumption (Naira)	122.17
Number of dependent	9.37
Number of children	5
Number of acre/farm household	3.70
	percentage
Age(years)	
20-32	20.50
33-45	45.43
46-58	25.87
59-71	5.36
72-84	2.84
Marital Status of farm household head	
(i) Bachelor	5.99
(ii) Married	85.17
(iii) Divorced	3.47
(iv) Widow	3.79
(v) Widower	1.58
Household head Sex	
(i) Male	89.59
(ii) Female	10.41
Educational Level	
(i) None	74.13
(ii) Primary school	19.87
(ii) Secondary	4.73
(iii) Tertiary school	1.26
Household head years of farming experience	25.5
Household head main occupation	
(i) Agriculture	90.85
(ii) Non-Agriculture	9.5
Spouse main occupation	
(i) No-occupation	18.30
(ii) Agriculture	41.64
(iii) Non-Agriculture	40.06

Table 2: Descriptive socio –economics characteristic statistics of respondents.

Indicator	Incidence%
Education attainment House	74.76
	36.59
Floor material	64.36
Wall material	63.09
Roof material	71.92
Television	41.64
Radio	25.87
Motor bike	55.21
Drinking water	93.06
Sanitation	91.48
Cooking material	93.69
School age child attendance	57.10

Table3: Incidence of deprivation across indicators.

indicating a wide gap between education poverty and consumption poverty (based on per adult equivalent) and a wider gap to living standard poverty (i.e. 29.97% as oppose to 44.48%). Finding showed that 44.79% household are poor in education dimension whereas those with at least primary school education or school attendance of the school age child household is 55.21%(i.e. non-poor educationally), in the three study areas. The difference between consumption and living standard poverty is not as wide as that of education and consumption. (i.e.14.51% as oppose to 29.97%). This shows that respondents spent

more on education than consumption and living standard. This is so as many households in the south western part of Nigeria, attached more priority to education at least primary education (Table 4).

The results of aggregated measures of poverty are presented in Table 5. This includes poverty head counts for both multidimensional and monetary poverty. Based on per capita consumption expenditures about 86% of the respondents are classified as living below poverty line of USD1.25/day. As indicated by Table 5, about 82% of respondents are multidimensionally poor. Dimension adjusted headcounts (M_0) for the multidimensional poverty is 69% (Table 5).

Discussions

The statistics of incidence of poverty clearly showed that drinking water, sanitation, cooking, roofing materials and also floor and wall materials are the main indicators of deprivation in the three local governments. This finding shows that majority of the farm households are grossly deprived with regards to dignified and improved standard of living. According to Ataguba et al. [10]; Dixon [17], non-functionality in those mentioned factors above will adversely affect household wellbeing as well as their productivity, hence increase in poverty. The variables that predict multidimensional poverty in the study area include, age, marital status, income, number of dependents and household head farming experience. While age, marital status, income and number of dependants are significant at 1 per cent level, household farming experience are significant at 10 per cent level. Age variable showed that it has probability to decrease possibility of being poor. The reason for this statistic is that the bulk of the household heads are between the ages of 20 -58 years (91.8%). The respondents still their active ages, therefore going by their ages, there is propensity to turn out higher productivity and their by reduce poverty. Both studies of Adeoti [18], Ataguba [10] have similar results in the multidimensional poverty studies in rural Nigeria. The respondents of 58 years and above (8.2%) have probability of increasing poverty (i.e. the higher the

age the higher the tendency of being poor). This argument was also recorded by Babatunde et al. [19]. Intuitively, this is expected as the years increases the less is productivity, hence the higher is the tendency of being poor, especially in developing countries like Nigeria, where no provision for social security system cum low saving Adeoti [18]. Marital status of the farmhouse hold indicated that it was significant at 1% level. As a married individual more responsibilities are expected, this is prevalence in Africa settings, which lead to more poverty Adesiyi [9]. Income factor predicts probability of the household to be poor.

This is expected, income being the control variable is a common knowledge that it should have effect on poverty status of an individual. Number of dependant showed probability to reduce poverty. The reason could be that, most of the dependants are hired for at least a year to work on farm and pay them at the end of the year. Normally, the outputs of these dependants always more than the expenses incurred by the person that engaged them, there is tendency to have decrease in poverty Household head farming experience has the tendency of increasing poverty. Developing countries are still practicing traditional agricultural methods, with crude implements and without little or no education. It is possible that the more the number of years individual put into farming the less is the output Adesiyi [9] (Table 6).

Conclusion

From the study, we can inferred that poverty in this study area is endemic (with 69 per cent of adjusted head count value), and agriculture as their main occupation. This confirms previous studies that poverty resides predominantly in the rural settings especially among the landless farm household (Arif et al [20]; Adepojuand Yusuf [21]; Adeot [18]; IFAD [22]). Important factors that determine poverty in the study area are: age, marital status, income, number of dependents and farming years of experience. With respect to poverty dimensions, standard of living, consumption and education dimension have a worrisome proportion of poverty. The implication of these statistics is that a need for a holistic anti-poverty programme is imperative. Also, to stem the tides of poverty, the class of vulnerable individual should be targeted, as revealed in the incidence of depravations; this will reduce the total number of people that will be poor multidimensionally. Land holding rights should be enforced as it will assist farmhouse hold to practice agricultural farming systems that will pay them off at long run. Most importantly, agricultural sector need a prompt attention as to alleviate poverty and also to attract young school-leavers to the sector.

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Poverty (Poor)	percentage	poverty (Non-poor)	Percentage
Multidimensional	82.2	Multidimensional	17.98
Education	44.79	Education	55.21
Consumption	74.76	Consumption	25.24
Housing/living standard	89.27	Housing/living standard	10.73

Table 4: Poor and non-poor percentages.

Head count (%) Monetary Poverty	H (Headcount Ratio)	A (Average Gap)	M_0 (Adjusted Headcount Poverty)
86.44	0.82 (82%)	0.85	0.69

Significant at *10%, **5% and ***1%

Table 5: Monetary and multidimensional poverty.

Variable	Coefficient	Standard Error	P-Value
Age	-0.328	0.147	0.03**
Marital Status	0.418	0.146	0.004***
Income	0.218	0.708	0.002***
No of Dependant	-0.192	0.435	0.000***
Household head farming experience	0.027	0.0134	0.056*
No of children	-0.017	0.076	0.824
Household head main occupation	-0.018	0.295	0.951
Constant	-1.056	0.482	0.028**

Number of observation: 317; LR chi² (7): 65.28; Log likelihood: -116.69874; Prob>chi²: 0.0000; Pseudo R²: 0.2186.

Table 6: Determinants of farmhouse poverty in Oyo state farm settlements.

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