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An analysis of multidimensional poverty and its determinants in rural Nigeria

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Human beings live to get happiness, livelihood, peace, security, safety, dignity and respect among others. Deprivation of any of these could be frustrating. Thus, attempts were made to determine multidimensional poverty index (MPI) of rural households and its decomposition by geo-political zones in Nigeria using the Alkire-Foster MPI approach. The result showed that the headcount poverty ratio H was 78.1% when K = 30 as compared to 58.8% for K = 40 and 23.6% for K = 60. The adjusted headcount ratio also suggested that 41% of the households were poor at K=30, whereas 34.2 and 16.7% of the households were considered poor for K=40 and K=60, respectively. The intensity of poverty from the result showed that the share of dimensions in which the poor were deprived increased with K, while the MPI of the households was decreasing with K. The result further revealed that living conditions contributed the largest value (59.9%) to the multidimensional poor, followed by education (14.3%), health (13.4%) and assets (12.4%). Therefore, the living condition and education of households should be prioritized in targeting poverty as it contributes largely to MPI across all the geopolitical zones in the country.

Key words: Asset, multidimensional poverty, Nigeria, rural, wellbeing.

INTRODUCTION

The most dehumanizing aspect of life in the entire world is poverty. This assertion is based on the fact that poor people lack basic necessities of life (food, shelter, clothing and medications). Different authors and researchers have explicitly defined poverty. According to Gbosi (2001), poverty is a condition of destitution and want; a state in which people cannot meet their fundamental needs to live, such as social amenities and economic structure needed for their sustenance. Poverty is deprivation of basic and valuable necessities to live good life which is germane for manful existence. Sule (2006) opined that, poverty is a result of inability of individuals, groups and society to meet up the minimum required social and economic infrastructure needed for

survival, a condition where individuals or group could not afford the cost to obtain desirable good and services in the economy.

According to World Bank (2007), extreme poverty is when individuals lives on less than $1.25 (purchasing power parity; PPP) per day, while moderate poverty is living on less than $2 a day. If an individual or family has access to subsistence resources for instance, that is, a condition of subsistence farmer with low cash income without a corresponding low standard of living, they live on their cash income but use the cash to augment what they have. On this note, poverty is taken to be cankerous and a menace that manifests through hunger, destitution of shelter, being sick, inability to attend school, illiteracy, not been able to speak properly, unemployment, future phobia, loss of children through insufficient access to clean water, powerlessness, lack of representation and freedom (World Bank, 1999). The major cause of an increase in poverty level in most African countries is a series of conflicts, civil war, political instability, drought, high external debt and rapid rise and spread of HIV/AIDS (Arimah, 2004). Therefore, the people living in poverty according to the assertion of the World Bank, (2000) feel a bypass of new economic privileges via insufficient access to market, denial of resources for fair participation and/or hindrance to a higher level of society through their less ability. They believe that poverty is more than the consideration of income alone; good life or well-being is multidimensional, with both material and psychological aspects.

Sub-Sahara Africa is reported to have the largest population suffering from hunger (FAO, 2015). Nigeria is the most populous country in the region and is vastly blessed with natural, geographical and socioeconomic factors, which makes up the country's wealth and potentials (Omotola, 2008). This could enlist the country among the richest in the world that should have no business with extreme poverty. But, it is quite disturbing, that despite the largely endowed natural resources, active labor force, and high production, Nigerians still suffer hunger. The nation is threatened by food insecurity, with a higher number of its populace not able to afford one US dollar per day (Francis, 2010). Looking at the trend and poverty level in Nigeria, Garba (2006) reported that the United Nations estimated that only about 15% of 42 million Nigerians were poor when the country got her independence in 1960. As the population increased to about 147 million in 1980, the poverty level also rose to about 28%. Poverty has been on the increase and according to the report of the United Nation Development Programme UNDP (2010), the number of people wallowing in poverty has increased to 68.7 million, in spite of the rise in GDP growth rate that the country has witnessed. This assertion is supported by the National Bureau of Statistics (NBS, 2012) which shows that 69% of the populace was in acute poverty; this showed that poverty in Nigeria is at endemic stage.

According to NBS (2012), about 112,519 million Nigerians were relatively in poverty condition, which represents 69% of the total population. The figure fluctuates when compared with the country's estimated population (163 million). It is pertinent for individuals or households to design means of meeting their basic needs or insufficient outcomes with respect to education, nutrition and health, and with deficient social relations, low self-esteem, insecurity and powerlessness to combat poverty. Therefore, if potential impacts of several anti-poverty programs, such as food security intervention programs are not considered, the poverty trend may further increase in the future. Therefore, developing a strong framework for measuring multidimensional poverty that corroborates the techniques developed to measure unidimensional poverty is required. To this end, this study is geared towards investigating multidimensional poverty of rural households in Nigeria

Literature review

Poverty has presumably always been understood as a multidimensional problem, yet traditionally, it has been measured unidimensionally with income or expenditure. This is based on the assumption that the income level could capture fairly well whether people were able to achieve certain minimum thresholds in a variety of dimensions such as nutrition, clothing and housing. But studies in recent years have being witnessing growing consensus regarding the shortfall of income poverty measures (Sen, 1992). Firstly, some fundamental needs are not satisfied in the market, or markets function very imperfectly. In these cases, non-market goods or institutions are required to provide for these needs. One example of this is access to clean water and education, which is sometimes provided by the state or NGOs. Secondly, each household has a different capacity to convert income into functioning.

Ukwu (2002) recognizes two basic concepts of poverty and it includes: Absolute poverty and relative poverty. On defining absolute poverty, the African Medical and Research Foundation (AMREF, 1998) views it as a condition in which individuals, households or society are deficient in or lack access to some basic necessity of life like clothing, food, education housing and health. Relative poverty is observed as a situation or condition when an individual, household, group or community are considered against some reference standards or parameters such as the average for the group or region, a target standard or objective or its ranking on given criteria. Therefore for this study, all concepts of poverty are relative. In other words, when referring to absolute poverty, it is a condition of existence below a reference standard of living. The concept of multidimensional poverty has gained grounds among researchers and policymakers. The fundamental and irresistible buildup of

Amartya Sen on participatory poverty exercises in many countries, and the principles behind the Millennium Development Goals (MDGs) have all drawn attention to the number of deprivations that the poor suffer from and the linkage among these deprivations.

According to Bruck and Kebede (2013), multidimensional poverty measure is composed of different variables. Viewing from literacy or tangible assets could be more reasonable methods for the assessment of poverty which could also capture long-term poverty. The identification of "poor" is the main focus of both the unidimensional and multidimensional poverty approaches which serve as a leap towards the accuracy of poverty measurement and analyses (Zedini and Belhadj, 2015). Poverty in sub-Sahara Africa (SSA) is endemic and thus causes low level of infrastructural development in the region. According to the African Development Bank Group (AfDB, 2015), Nigeria contributed 26.2% of SSA poor as at 2010 with a poverty rate of 68.0% from her total population. This assertion was confirmed by Alkire and Housseini's (2014) study when they estimated that 71.2 million Nigerians are MPI poor; this represents 15.4% of the total number of Sub–Saharan African (SSA) MPI poor.

In like manner, Batana (2008) used the Alkire and Foster (2008) method to estimate multidimensional poverty in 14 Sub–Saharan African countries. Identification of who is poor and who is not poor was based on four dimensions: assets, health, schooling and empowerment. Four main results included: Firstly, there were important cross-country differences in multidimensional poverty; secondly, the ranking of countries based on the Alkire and Foster (2008) multidimensional poverty measure differs from rankings based on standard welfare measures (HDI and income poverty); thirdly, decomposition of multidimensional poverty is more prevalent in rural than urban areas and; fourthly, decomposition of poverty by dimensions indicated that lack of schooling is the key contributor to multidimensional poverty.

Oyekale and Yusuf (2010) determined the socio-economic factors that influence experience of shocks by households and decomposed multidimensional poverty across welfare shocks and coping methods. The 2006 Core Welfare Indicator Questionnaire (CWIQ) data of the National Bureau of Statistics (NBS) was used for this study and the data were analyzed through the use of descriptive statistics and Fuzzy Set. The increasing price of agricultural inputs was the major shock experienced by rural households in the study area. The households that were multidimensional poor are faced with the shock of insufficient farmland. Most of the rural household heads engage in working on farms that belong to other households in order to survive poverty. Also, household heads that turned to begging on the street for survival were multidimensional poorer than those that adopted other coping methods.

Multidimensional poverty measure

In measuring the multidimensional poverty, the headcount ratio was firstly considered which can also be referred to as the percentage of poor households. This is given as:

$$H = \frac{q}{n}$$

where $q = q(y;z)$ is the number of households in the set zh, as identified using ρh the dual cutoff method.

Alkire and Foster (2008) proposed a headcount measure that is adjusted by the average number of deprivations experienced by the poor. To this end, a censored vector of deprivation counts kh is defined so that if $k_i \geq h$, then $k_i(h) = k_i$; and if $k_i < h$, then $k_i(h) = 0$.

This indicates that the count of deprivations in $k(h)$ is always zero for non-poor households according to the ρh dual cutoff method, while the identified poor households keep the original vector of deprivation count k_i. Then, $\frac{k_i(h)}{d}$ represents the shared possible deprivations experienced by a poor across the poor. This is given by:

$$A = |k(h`qd)$$

By focusing on the poor, the Alkire-Foster approach allows computing a final adjusted headcount ratio that satisfies the properties of decomposability and poverty focus. The dimension adjusted headcount ratio $M_0 (y;z)$ is given by: $M_0 = HA$ or simply the product of the headcount ratio H and the average deprivation shared across the poor A. The dimension adjusted headcount ratio clearly satisfies dimensional monotonicity, since A rises when a poor households becomes deprived in an additional dimension. In addition, similar to the headcount ratio H, M_0 satisfies decomposability, replication in variance, symmetry, poverty and deprivation focus, weak monotonicity, non-triviality, normalization and weak rearrangement (Alkire and Foster, 2008). An attractive property of M_0 is that it can be decomposed by population decomposition obtained by:

$$M_0 (x,y;z) = n(x) M_0 (x;z) + n(y) M_0 (y;z) n (x,y) n(x,y)$$

where x and y are the distribution of two subgroups (x,y), the distribution obtained by merging the two: (n(x) the number of households in x, n(y) the number of households in y, and n(x,y) the number of households in n(x,y).

In other words, overall poverty is the weighted average of subgroup poverty levels, where weights are subgroup population shares. This decomposition can be extended to any number of subgroups. In addition, it is also possible to break down overall multidimensional poverty measure to reveal the contribution of each dimension j to it. Once the identification step is completed, a censored matrix of deprivations $g_0 (k)$ is defined whose typical entry

is given by $g_{0ij}(h) = g_{ij0}$ for every i satisfying $k_i \geq h$, while $g_{0ij}(h)$ for i with $k_i < h$. Then, $M_0(y;z)$ can be broken down into dimensional groups as:

$$M_0(x,z) = \frac{\Sigma j \psi(gij0(h))}{d}$$

Consequently, $\frac{1}{d}\psi\frac{(gij0(h))}{M0(y;z)}$ can be interpreted as the post-identification contribution of dimension j to overall multidimensional poverty.

METHODOLOGY

This study was carried out in Nigeria. Households' food expenditure data were extracted from the Wave 2 of the Nigerian General Household Survey (GHS) – Panel 2012/13 conducted by the National Bureau of Statistics (NBS) in collaboration with the World Bank Living Standards Measurement Study (LSMS) team, with funding support from the Bill and Melinda Gates Foundation. It contains rich demographic data and few relevant socioeconomic data on households and household assets.

A two-stage stratified sampling technique was used for the study. The first stage involved clusters of housing units called enumeration area (EA), and the second stage involved the selection of housing units. About 3,217 housing units were found useful for the study. Expenditure on food consumption of each household (production share, purchase share, and the meal away from home) was explored. The production share of the food product was estimated with the use of the prevailing price of the product in the same EA.

Analytical techniques

Alkire and Foster (2008) methodology include two steps: an identification method (ρk) that identifies 'who is poor' by considering the range of deprivations they suffer, and an aggregation method that generates an intuitive set of poverty measures (Mα) (based on traditional FGT measures) that can be broken down to target the poorest people and the dimensions in which they are most deprived. It also proposes two additional measures in the same class of multidimensional poverty measures: the adjusted poverty gap and the adjusted FGT measure, which are sensitive to the depth of deprivation in each dimension, and the inequality among the poor.

The notation: Let y = [y_{ij}] denote the n × d matrix of achievements,

where n represents the number of households, d is the number of dimensions, and $y_{ij} \geq 0$ is the achievement of households I = 1, 2…..,n in dimension j=1,2,…d.

Each row vector $y_i = y_{i1}, y_{i2}, …., y_{id}$ lists households i's achievements, while each column vector $y_{\bullet}$ j = $y_{1j}, y_{2j}, …. y_{nj}$ gives the distribution of dimension j achievements across the set of households.

Let $z_j > 0$ denotes the cutoff below which a household is considered to be deprived in dimension j and let z be the row vector of dimension specific cutoff. The expression |v| denotes the sum of all the elements of any vector or matrix v, and μ(v) represents the mean of |v|, or |v| divided by the total number of elements in v.

For a given matrix of achievements y, it is possible to define a matrix of deprivation g0=[gij0] whose typical element gij0 is defined by g ij0=1 when yi<zj, while gij0 = 0 otherwise. Hence, g 0 is a n × d matrix whose ij[th] entry is 1 when child i is deprived in dimension j,

and 0 otherwise according to each dimension cutoff zj. From this matrix, we can construct a column vector c of deprivation counts, whose i[th] entry ci = |gi0| represents the number of deprivations suffered by a child. It is noteworthy that the matrix and vector can be defined for any ordinal and cardinal variable from the matrix of achievements y.

Following Alkire and Foster (2008), the vector c of deprivation counts is compared against a cutoff k to identify the poor, where k = 1…d. Hence, the identification method ρ is defined as ρk (yi;z) = 1 whenever ci≥ k, and ρk (yi;z) = 0 whenever ci < k. Finally, the set of households who are multidimensional poor is defined as Zk= {i :ρk(yi;z)}. In other words, the method identifies as poor any household who is deprived in more than k number of dimensions.

Alkire and Foster (2008) refers to ρk as a dual cutoff method because it first applies the within dimension cutoff zj to determine who is deprived in each dimension, and then the across dimension cutoff k to determine the minimum number of deprivations for a household to be considered multidimensional poor. They identify absolute poverty as those household who suffer from at least two or more deprivations (equivalent to k = 2), and as in severe deprivation those who suffer from at least one deprivation (equivalent to k = 1).

Logit regression analysis

Logit model was used to estimate the determinants of poverty in rural Nigeria. Logit model is a statistical method for analyzing a data set in which there are one or more independent variables that determine an outcome. The outcome is measured with a dichotomous variable (in which there are only two possible outcomes). Following Menard (1995) and Agresti (1996), the study's logistic model is specified as:

P = E (Yi = 1 /Xi) = e(ß0+ß1X1+ ß2X2………ßiXi)   (1)

where Pi is a probability that dependent variable Y_i = 1 poor and Y_i = 0 otherwise. $ß_0$ is the intercept which is constant, $ß_1$ is the coefficient of determinants of poverty in the study area. X_i is a set of independent factors/variables. The factors hypothesized include: Age, household size, gender, education, share of dependent on household head, married, land ownership, agricultural wages, non-agricultural wages, distance to the nearest health centre, share of HH with portable water.

RESULTS AND DISCUSSION

The multidimensional poverty estimates are based on four dimensions: Education, health, assets and living conditions (Table 1). Deprivation on each dimension was obtained through the generation of weights for each indicator. The number of dimensions in which household must be deprived, a second cutoff K, was set below which a household is considered poor. The estimated poverty index based on the value of cutoff, K is presented in Table 2. From the table, a decrease in poverty measures as the level of K decreases was noticed. When K = 30, the headcount poverty ratio H was 78.1% as compared to 58.8% for K = 40 and 23.6% for k= 60. This agrees with the findings of Adeoti and Popoola (2012). The adjusted headcount ratio also suggested that 41% of the households were poor when K=0.3, and that 34.2 and 16.7% were poor for K = 0.4 and k = 0.6, respectively.

Table 1. Dimension, indicators, deprivation cut-off and weights of multidimensional poverty index (MPI).

Dimension	Indicator	Deprivation cut-off
Education	Child enrollment	A household is deprived, if any school aged-child is not currently enrolled
Health	Child mortality	A household is deprived, if any child is dead due to illness
	Nutrition	A household is deprived, if any household member is malnourished
Assets	House ownership	Households living in a single room, house made of wood, and straws.
	Electric gadgets	The household is deprived in this indicator if they do not own more than one of a group of small assets (radio, TV, telephone, bike, motorbike, or refrigerator) and do not own a car or truck.
Living conditions	Lighting fuel	The household is deprived if they do not have access to electricity.
	Cooking fuel	The household is deprived if they cook with wood, coal, straw or dung.
	Drinking water	The household is deprived if its main source of water is from unprotected wells, open spring, and surface water or they require more than 30 min to fetch water.
	Floor materials	The household is deprived if it has a dirt floor (earth, sand or dung).
	Type of toilet	The household is deprived if it uses uncovered pit latrine, bucket and hanging toilet does or is shared with another household.
	Refuse disposal	The household is deprived if it dump its refuse in an open area, water side, within and outside the compound.

Source: Alkire and Foster (2008).

Table 2. Multidimensional poverty indices

K (%)	Adjusted headcount (Mo =HA)	Headcount (H)	Poverty gap (A)	Average deprivation (A/K)
0.3	0.410	0.781	0.525	1.75
0.4	0.342	0.588	0.582	1.46
0.6	0.167	0.236	0.707	1.18

Source: Author's computation (2016).

Table 3. Relative contribution of dimensions to MPI.

K (%)	Education	Health	Assets	Living condition
0.30	0.124	0.167	0.168	0.540
0.40	0.131	0.150	0.158	0.561
0.60	0.143	0.134	0.124	0.599

Source: Author's computation (2016).

Table 4. Decomposed multidimensional poverty indices by geopolitical zones in Nigeria.

Poverty cutoff Zones	K (%) = 0.3				K (%) = 0.4				K (%) = 0.6				Pop. share
	M_o	H	A	AD	M_o	H	A	AD	M_o	H	A	AD	
SS	0.347	0.687	0.506	1.69	0.273	0.477	0.573	1.43	0.136	0.191	0.700	1.17	0.169
SW	0.318	0.674	0.472	1.57	0.240	0.452	0.531	1.33	0.067	0.098	0.680	1.13	0.167
SE	0.352	0.741	0.475	1.58	0.257	0.473	0.542	1.36	0.086	0.124	0.688	1.15	0.190
NC	0.522	0.916	0.569	1.90	0.471	0.773	0.610	1.53	0.274	0.383	0.716	1.19	0.163
NW	0.465	0.859	0.541	1.80	0.407	0.695	0.586	1.47	0.205	0.291	0.705	1.18	0.158
NE	0.475	0.825	0.576	1.92	0.428	0.692	0.619	1.55	0.260	0.363	0.716	1.19	0.154

Source: Author's computation (2016).

The intensity of poverty showed that the share of dimensions in which the poor were deprived increased with K. Meanwhile, the MPI of the households was decreasing with K. This indicated that the numbers of poor households reduced but the intensity of poverty increased.

The relative contribution of the various dimensions to overall multidimensional poverty is shown in Table 3. The result showed increased contribution of Education to MPI as the cutoff (K) increased. Similar trend was observed with the living condition, where the result increased with increase in the cutoff (K), but the case was different with health and assets, where the result decreased with increase in cutoff (K). The result also suggested that the highest contribution was from living condition with 54%, followed by assets (16.8%) and health (16.7%), while education contributed the least with 12.4% at k= 0.3. Similar results were observed at k= 0.4 when living condition recorded a value of 56%, followed by assets with 15.8%, health with 15% and education with 13.1%. At k= 0.6, the living condition contributed the largest value (59.9%) to the multidimensional poor followed by education (14.3%), then followed by health (13.4%) and assets with 12.4%.

The results clearly showed a wide gap between households' living conditions and other dimensions considered, that is, assets, health and education at all the cutoff points. This indicated that living condition, health and education of the respondents should be a policy target to reduce poverty in the study area and that effort should be geared towards improving the standard of living of the people through provision of basic amenities.

Table 4 shows the decomposed MPI for the geopolitical zones in Nigeria. The table showed poverty headcount (H) of 68.7% in the South-South as compared to 47.7 and 19.1% when K = 0.4 and k=0.6. About 67.4% in the South-West, when K=0.3% as compared to 45.2 and 9.8% when K=0.4 and k=0.6, respectively. In the North West, poverty headcount (H) was recorded as 74.1% at k=0.3 when compared with 47.3 and 12.4% when K=0.4 and k=0.6, respectively, while North west, North Central and North East recorded 91.6, 85.9 and 82.5% respectively at cutoff (K) of 0.3% as compared to 77.3 and 38.3, 69.5 and 29.1, and 69.2 and 36.3 for K=0.4 and K=0.6, respectively. The result also showed decrease in the households' MPI as the cutoff (K) increased for each zone. This result indicated that as the number of poor households reduced, the intensity of poverty increased. It is evident from the result that poverty is more in the northern part of the country than the southern part though the MPI in all the zones was extremely high. Therefore, stakeholders should work out ways to reduce the incidence and intensity of MPI in all the zones.

Table 5 shows the relative contribution of the various dimensions to overall multidimensional poverty in different geopolitical zones in the country. From the result, it was evident that at K = 0.3, living condition had the highest contribution with the value of 43.7% followed by assets, health and education with the value of 15, 13.1 and 13%, respectively, in the south-south. Similarly, the result followed the same sequence in the South West, but in the South East it was, living condition (37.9%), assets (18.3%), education (15.4%) and health (14.3%). The result of North West, North central and North East

Table 5. Decomposed relative contribution of dimensions to MPI by geopolitical zones

Pov cutoff Geo	Education	Health	Asset	Living condition	Education	Health	Asset	Living condition	Education	Health	Asset	Living condition
SS	0.130	0.131	0.150	0.437	0.123	0.111	0.122	0.444	0.107	0.089	0.102	0.502
SW	0.104	0.150	0.166	0.357	0.107	0.126	0.135	0.334	0.081	0.051	0.061	0.205
SE	0.154	0.143	0.183	0.379	0.155	0.117	0.142	0.338	0.098	0.065	0.078	0.273
NW	0.145	0.233	0.196	0.699	0.170	0.246	0.197	0.766	0.244	0.264	0.208	0.926
NC	0.078	0.191	0.175	0.690	0.090	0.190	0.172	0.740	0.137	0.170	0.159	0.761
NE	0.129	0.163	0.137	0.730	0.139	0.166	0.135	0.812	0.201	0.182	0.148	1.025

Source: Author's computation, 2016.

Table 6. Coping strategies adopted for mitigating poverty in the study area.

Coping strategy	Frequency	Percentage
Limited food	868	42.80
Skip meal	602	29.68
Meal size reduction	654	32.25
Children first	338	16.67
No food at all	188	9.27
Sleeping hungry	156	7.69
Borrowing from neighbour	214	10.55
Working on another farms	64	3.16
Total	3084	100.0

Source: Author's computation, 2016. Multiple response.

followed the same order, that is, from living condition, health, education and assets.

Also, when K = 0.4, the result showed that living condition contributed the highest value to the MPI in all the zones with about 44.4% in the south-south, 33.4% in the south west, 33.8% in the south east, 76.6% in the north west, 74% in the north central and 81.2% in the north east zone. In the area of assets: the SS, SW, SE, NW, NC and NE, possess the value of 12.2, 13.5, 14.2, 19.7, 17.2 and 13.5%, respectively. The NW had the highest value in term of health, followed by the NC and NE. Also, the relative contribution of education to MPI was found higher in the NW, followed by SE and NE. The result suggested that living condition, health and assets needed serious attention in formulating our policy. Furthermore, when K = 0.6, living condition of the respondents contributed highly to MPI in all the zones, the contribution of assets was high in NW, NC and NE with value of 20.8, 15.9 and 14.8%, respectively. NW had the highest record to MPI in both health and education dimensions followed by the NE zone.

Coping strategies adopted in cushioning the effect of poverty in the study area

Table 6 revealed that 42.8% of the rural households consumed limited food, 32.3% engaged in the reduction of meal size, 29.8% skipped meals as a means of coping with poverty,

Table 7. Logistic regression estimates of determinants of poverty in rural Nigeria.

Poverty status	Marginal effect	Std. err.	z	P>|z|
Age	-0.0020231	0.00319	-0.63	0.526
Household size	0.0842577	0.01340	-6.29	0.000***
Gender	0.6153034	0.17966	3.42	0.001***
Education	-0.1287791	0.04828	2.67	0.008***
Share of dependent on HH	0.4425343	0.07764	5.70	0.000***
Married	-0.0241179	0.03170	-0.76	0.447
Land ownership	-0.0022548	0.00065	3.42	0.001***
Agricultural wages	0.0416926	0.03113	1.34	0.181
Non-Agricultural wages	-0.0061836	0.00207	-2.97	0.003***
Dist. to nearest health centre	0.0047955	0.00377	1.27	0.204
Share of HH with portable water	0.0055988	0.08483	0.07	0.947
Constant	-1.622204	0.34045	-4.76	0.000***

Diagnostic test
LR Chi^2(5) = 97.00
Prob> Chi^2 = 0.0000
Log likelihood = -2043.8548
Pseudo R^2 = 0.2320

Source: Author's computation (2016).

about 16.7% always fed their young one first before consuming the remaining food, and 10.6% borrowed food from their neighbours. About 9.3% consumed nothing throughout the day; this could probably mean that they engaged in fasting whenever there was food shortage in the house, while only 7.7% households slept hungry and about 3.2% engaged in working on other people's farms for wages to support their households. The result showed that not much of the household engaged in off-farm income generating activities in order to improve their level of income. The result contradicted the findings of Idrisa et al. (2008) who reported that 68.3% households allowed their children to eat first.

Determinants of poverty in rural Nigeria in the study area

The result presented in Table 7 showed the logit estimate of determinants of rural poverty in Nigeria. The MPI obtained for the poverty cutoff K=3 was taken as the poverty line to group households as poor or non-poor. The logit model with a significant chi-square at 1% shows that the model is a good fit for the data. The pseudo r^2 was 23.2% and the log likelihood was -2043.8548. Table 7 revealed that household size, gender, year of education, share of dependent on household head, land ownership and non-agricultural wages were significant determinants of poverty in the study area. The result showed that household size was positively significant at 1%, implying that in an increase in the household size,

there is probability of increase in the poverty of the respondents by about 8%. The result is in consonant with findings of Fanifosi and Amao (2016) in their work where household size was significant at 1%. Increase in female headed households is seen to increase the chance of being poor by about 62%; this might be in conformity with the assertion that female access less productive capital as compare to their male counterpart. The result is in line with the findings of Adeoti (2014).

Also, more years of education is known to reduce poverty in the study area by 12.9% and an increase in the share of the dependents on the household head will raise poverty of the respondents. Increase in land ownership will reduce poverty in the study area, as this will help the respondents in increasing their farmland and cultivate more food for market purpose. Finally, non-agricultural wages showed a significant influence in reducing poverty in the study area and it means that a rise in the wages obtained from non-agricultural activities will reduce the poverty of the respondents by 0.6%.

CONCLUSION AND RECOMMENDATIONS

The study employed the Alkire-Foster approach to estimate the multidimensional poverty of the rural households in Nigeria and decomposed the MPI based on the six geo-political zones in the country. From the findings, it can be deduced that, the share of dimensions in which the poor were deprived increased with cut off (K). Meanwhile, the MPI of the households decreased

with K. This indicated that the number of poor households reduced but the intensity of poverty increased. Also, the result showed that, North East, North Central and North West of the country had the largest population in the rural area which was multidimensional poor with each cutoff. The South-western part of the country was the least followed by the south-south and south-east. Finally, it was revealed that, the highest contribution to MPI was from living condition, followed by assets, health and then education. Based on the findings, the study therefore recommends that living condition, health and education of the respondents should be a policy target to reduce poverty in rural Nigeria. So, policy should be enacted with quick implementation of effective and sustainable anti-poverty programmes that will cut across all the geopolitical zones in the country.

CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

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