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Multidimensional Poverty among Households in Southwest Nigeria

Sakiru Oladele Akinbode
Department of Economics, Federal University of Agriculture, Abeokuta, Nigeria
Email: deleakinbode@yahoo.com

Folake Elizabeth Ojediran
Department of Economics, Federal University of Agriculture, Abeokuta, Nigeria
Email: pholakemyoje@yahoo.com

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Abstract

Money metrics have been adopted in studies of household poverty in Nigeria while few have considered alternative methods. This study analysed poverty among households in southwest Nigeria adopting a "Multidimensional Approach". This is necessary for robust and effective policy. Data were collected from 355 randomly selected households. Alkire-Foster's methodology was used to assess households' poverty and this was further decomposed. The majority of the households lacked improved toilet facilities, sanitation, improved drinking water, nearness to healthcare centres and primary schools, while most households engaged in self-medication. About 7.9 percent were deprived in all the eleven indicators considered. The Multidimensional Headcount Ratio (H) when cut-off (k) was set at 1/3 revealed that 69% of the households were poor and its Intensity (A) was 65% while the Multidimensional Poverty Index (MPI), which is the Adjusted Head Count Ratio (M0) revealed that an average household in the area was deprived of 45% of the total potential deprivations it could experience. Decomposition by socioeconomic characteristics revealed that the poverty rate was higher among female-headed households. The same applied to households headed by divorced individuals, younger persons, farmers, less educated individuals and larger households. When k=2/3, 44.2 percent of the households were classified as poor with an "A" value of 0.416 and the MPI being 0.184. At k=1 the percentage of poor households reduced significantly to 7.9 percent with an intensity value of 0.074 and MPI of 0.006. It is recommended that government should improve access to education, health care and enforce various sanitation laws to improve households' hygiene. Policies should also be geared towards empowering households in order to escape poverty.

Keywords: Poverty; deprivation; households; multidimensional approach; Nigeria.

JED code: I32, O12.

1. Introduction

Poverty has been a widely discussed topic by governments and development agencies around the world. Poverty reduction is a major goal and issue for many international organizations such as the World Bank, the United Nations, UNICEF and UNESCO among several others. Various studies have been conducted on poverty by researchers adopting different views or definitions and methodologies as well. Most of the research works on poverty are aimed at understanding the static and dynamic nature of poverty and to possibly proffer solutions. Relevant literature shows that there is no general consensus on any meaningful definition of poverty, that is, there is no concise way of defining the concept of poverty, as it is a multi-dimensional phenomenon that affects many aspects of the human condition, ranging from physical to moral, to psychological and to political (Ogwumike, 2002). However, poverty may be viewed as the general dearth, scarcity or the state of someone who lacks a certain amount of material possessions, money or social capital. It has been treated as a multifaceted concept, which includes social, economic and political elements.

Furthermore, poverty may be described as the lack of many resources, which possibly leads to physical deprivation and hunger. It includes lack of voice, power, and independence that subjects those afflicted to exploitation. Poverty among the people exposes them to rudeness, inhumane treatment and humiliation by the private and the public agents of the state from whom they usually seek help. Many criteria have been used to perceive poverty. An economist would approach the subject of poverty from the point of view of effective demands, needs and wants while the psychologist may want to look at it from the standpoint of deprivation, esteem and ego. From whatever perspective poverty is viewed, it is obvious that poverty is a condition of life that is extremely degrading and likely to insult the dignity of the people being afflicted.

Poverty is a worldwide phenomenon that affects continents, nations and peoples differently. It afflicts people in various depths, levels of seriousness and at different times and phases of their existence. There is no country that is absolutely free from poverty. The major difference is in its intensity and prevalence. According to USAID (2013), the vast majority of those in extreme poverty reside in South Asia, Sub-Saharan Africa, The West Indies, East Asia and the Pacific while nearly half live in India and China alone. Nations in sub-Saharan Africa, South Asia and Latin America have the highest level of poverty and consequently have the lowest level of socio-economic development. They also have the highest level of social insecurity which may be due to joblessness, violence, unrest and a generally unacceptable low standard of living coupled with a low level of the social safety net (Oyebola, 2003). According to the World Bank (2015), 702.1 million people lived in extreme poverty around the world in 2015. This represented a noticeable reduction compared with 1.75 billion in 1990. Out of the 702.1 million, about 347.1 million people were said to be living in Sub-Saharan Africa (which represented 35.2 percent of the population) and 231.3 million lived in South Asia (about 13.5 percent of the population). It was reported that from 1990 to 2015, the proportion of the

world's population living in extreme poverty fell from 37.1 percent to 9.6 percent, falling below 10 percent for the first time in history. This may be due to the direct and indirect benefits of the United Nations' Millennium Development Goals (MDGs) which ended in December 2015.

According to the World Bank (2013), about 90 percent of maternal deaths which occur during childbirth happen in Asia and sub-Saharan Africa. This is quite high if compared with the less than 1 percent that occurs in the developed world. Poor people have also been shown to have a far greater tendency of having or incurring a disability in their lifetime (Global Policy, 2003)

Nigerian governments have at various times embarked on programmes aimed at reducing the incidence of poverty in the country. The Nigerian poverty rate increased from 27.2 percent in 1980 to 46.3 percent in 1985 and 65.6 percent in 1996 (National Bureau of Statistics NBS, 1996). There was a drop in the poverty rate to 54.4% in 2004 (Nigeria Bureau of Statistics NBS, 2004). As at 2013, the World Bank reported that the country's poverty rate was 33 percent. Furthermore, the poverty report released by the Human Development Report showed Nigeria's Human Development Index (HDI) value for 2012 was 0.47, positioning the country at 153 out of 187 countries and territories. The country's HDI value for 2014 was 0.514, which placed Nigeria in the low human development level and at 152 out of 188 countries. Between 2005 and 2014, Nigeria's HDI value increased from 0.467 to 0.514, an increase of 10.1 percent or an average annual increase of about 1.07 percent (UNDP, 2015). It is however worthy of note that the HDI figures should not be compared with those of previous reports due to the changing structural background.

Poverty reduction is undoubtedly one of the highest-ranking items in the national development strategies in Nigeria and the most potent issue in the current international development agenda. This is reflected in the Millennium Development Goal (MDG) whose target was to reduce the number of people living in poverty by half by December 2015. This important goal is also the first in the newly launched Sustainable Development Goals (SDGs) of the United Nations whose aim is "to eradicate poverty in all its forms everywhere by 2030". The vision statements of most bi-lateral and multilateral donor agencies are related to poverty reduction. The policy papers of most developing countries, for instance, the Nigeria National Economic Empowerment and Development Strategy (NEEDS), are directly linked to poverty reduction.

Most of the poverty figures are purely money-metric. The money-metric measure of poverty has achieved tremendous progress over the decades, but the well-being of a population, and hence, its poverty, which is a manifestation of insufficient well-being, depends on both monetary and non-monetary variables. The Human Development Report published by the UNDP (2006) stated that a lack of income only provides part of the picture in terms of the many factors that impact on an individuals' level of welfare e.g. longevity, good health, good nutrition, education, etc. Therefore, a more comprehensive measurement is required. The technical difficulties of income measurement,

especially in developing countries, have been an important initiative for looking at other poverty measures which will be more effective to eradicate poverty in the country.

It is common knowledge that, in Nigeria, different governments have embarked on various forms of poverty reduction strategies. For example, at independence in 1960, poverty eradication efforts in Nigeria centred on education, while Operation Feed the Nation (OFN) was launched in 1978. Others are The Green Revolution in 1980, People's Bank and Community Banks (now Microfinance Bank) — whose main targets were/are to mobilize idle funds and to aid capital formation and investment especially in the informal sector and rural areas—the Family Economic Advancement Programme (FEAP) in 1995, the National Economic Empowerment and Development Programme NEEDS in 2003, the National Poverty Eradication Programme (NAPEP), the Seven Point Agenda in 2007 and the Transformation Agenda in 2011etc. There have been several interventions by groups such as NGOs, Ministries, Departments and Agencies among others which may not be formally documented.

There is a dire need to assess and measure poverty in a way that will be effective in eradicating it. There are permanent challenges of measuring poverty due to the lack of general consensus on the definition of poverty. An income approach and an assets index approach, among others, have been used to assess poverty; yet, most of them give no true, consistent and concise definition of poverty. A multidimensional poverty measure provides an answer to frequently asked questions on poverty measures since it constitutes several poor experiences of deprivation which may include poor health, lack of education and inadequate living standard. In the light of the foregoing, there is an urgent need to evolve a study aimed at assessing poverty in Nigeria using the multidimensional approach. This is expected to give a full description of the state of being poor and chart a policy direction towards poverty reduction. To this end, this study sought to describe the nature of deprivation among the sampled households, to compute the multidimensional poverty index of the households with varied cut-off, to decompose according to household socioeconomic characteristics and other relevant criteria and to draw meaningful conclusion and make useful recommendations.

2. The concept of poverty

The choice of a definition of poverty will determine to some extent the number of people classified as poor and the rate at which poverty is perceived as being eliminated or alleviated. If the absolute standard is chosen, rising real living standards will push more people or families above the poverty line. It is only equalizing the distribution of income that can eradicate poverty under the relative measure of poverty. According to Agola and Awange (2014), the diversity of meanings attached to poverty renders conceptualization of poverty and its operational meaning and measurement difficult and intractable.

Absolute poverty

Absolute poverty, destitution or extreme poverty according to the United Nations (1995) is a condition where there is severe deprivation of basic human needs such as food, sanitation facilities, safe drinking water, health, shelter, education and information. Furthermore, it de-

pends not only on income but also on access to services. Extreme poverty commonly refers to earnings that are below the international poverty line of $1.25/day per person (in 2005 prices). Meanwhile, in October 2015, the new poverty threshold was reset to $1.90 a day after an extensive review of costs of living in a number of countries. Absolute poverty is one of the concepts of poverty used in different ways to represent a poverty level which does not change over time, in terms of the living standard that it refers to. It stays the same even if society is becoming more prosperous. Thus, the concept of *absolute poverty* is understood as the minimum set of resources a person needs to survive or to maintain a minimum standard of living. Absolute poverty relates to the inability of the individual to provide for him/herself the basic needs like food, shelter, clothing, potable water, education, health services, public transport etc. This type of poverty leads to deprivation. It is the line below which existence becomes a matter of acute deprivation, hunger, suffering and premature death. Absolute poverty needs immediate corrective actions by the government or those who it may concern to make appropriate policies to curb its incidence. In the view of Sen (1983), poverty must be seen to be primarily an "absolute notion". In his words, for instance, "if an individual is starving, he is considered to be poor even if everyone else is also starving". However, once one moves away from extreme cases it becomes much more difficult to make assertions that are comprehensively convincing.

Relative poverty

A relative concept of poverty considers those who are excessively worse off than the majority of the population, as poor. This level of deprivation is considerably out of line with the general living standards enjoyed by the majority of the people in such a society. It is a measurement of the resources and living conditions of parts of the population in relation to the economic status of other members of the society. Relative poverty considers an individual's economic and social status relative to the rest of society. If people's income and resources they possess are so insufficient to the extent that it prevents them from having a standard of living considered acceptable within the society they live, they are said to be living in relative poverty. Smith (1776) made it clear that "necessities" were determined by "custom" and hence that poverty was relative. De Montauge (1997) asserted that "poverty is measured by comparisons.

3. Theoretical literature relating to poverty

Economic development has traditionally focused on the gap between the rich and the poor countries and on ways that the process of growth, especially in poor countries, could be accelerated, with little or no attention given to the gap between the rich and the poor people in both the developed and developing countries until recently. This very belated concern about absolute poverty, relative poverty and income distribution has possibly been promoted by the realization that, even though development occurs and per capita incomes grow, the numbers of poor people also increases (Agola and Awange, 2014).

The neoclassical paradigm recognized that income inequality is necessary for growth and efficiency. The neoclassical belief is that if the

rate of growth in GNP is taken care of, poverty would be taken care of. Contrastingly, economic development reality clearly defies this theoretical framework. Keynesian economics posited that the use of taxes and subsidies for redistributing income would reduce or even eliminate poverty. The neoclassical approach neglected the fact that differences in personal incomes seem too large to be explained by differences in factor endowments alone among several other issues.

Looking at poverty from the Dual Labour Market theory perspective, which is a clear departure from the neoclassical orthodox assumptions, there exists a 'primary' sector in which employment was stable, where pay was good and where there were strong trade unions. There is also a 'secondary' sector where employment was unstable and pay was low while at the same time the prospects of promotion was poor and unions had very little stake or influence. Under this theory much emphasis was placed on the disadvantageous characteristics of the secondary labour market just as it is being placed on the characteristics of the individuals holding jobs. However, because the explanations provided by the Dual Labour Market theory were considered inadequate by scholars, new theories have been formulated. The Radical Economic theory of poverty draws greatly from the Marxist tradition, but according to Bosanquet and Doeringer (1973), it has re-modelled Classical Marxism in response to recent social and historical developments'. Here, the market price of a product affects the value of an individual's marginal product as in traditional theory. Supply and demand, reinforced by competition, affect an individual's productivity. But the radical theory also postulates that the class division in society and the relative distribution among classes will affect the distribution of individual income as well. An individual's class will, ultimately, affect both his productivity, through the allocation of social resources to invest in the workers of his class and through the differential access of different classes to different kinds of complementary capital, and his relative share of final product' (Gordon, 1972).

The Functional theory of poverty posited that in all societies there are different social positions or statuses which vary in pleasantness, difficulty and functions to the society. Specific returns have to be associated with them in order to guarantee that all positions are filled. Therefore, inequality is necessary so that the positions are filled. According to Gans (1972) who looked at poverty from a sociological and partly economic point of view, society has obsessed itself with the costs of poverty to the extent that it fails to appreciate the benefits. The crux of Gans' argument is that poverty has roles to play in the functioning of a society. These roles include: poor people being readily available to do all sorts of dangerous, undignified, dirty and menial jobs; engaging in unprofessional jobs like drug peddling and prostitution; purchase of damaged, stale and sub-standard goods thereby prolonging or creating economic usefulness for those goods; upholding the legitimacy of dominant norms; guaranteeing or securing of the status of the non-poor; ensuring viability of non-economic groups such as fund-raising and philanthropy, among several others. Gans concluded that poverty could only be eliminated when it either becomes effective-

ly dysfunctional for the rich or when the poor can obtain enough power to change the system of social stratification.

Sen (1992) contended that traditional welfare economics, which emphasised the revealed preferences utilities of individuals in their acts of choice, lack enough information about people's preferences to assess the social good. As a panacea, Sen's welfare theory relies on individuals' capability, not on individuals' attainments of basic needs. It was asserted that living consists of a vector of interrelated functioning (beings and doings), for instance, being well nourished, avoiding infant mortality, being happy, appearing in public without shame etc. According to Agola and Awange (2014), it is unfortunate that Sen did not assign particular weights to these functionalities, because, "well-being" is not a clear concept. As far as Sen was concerned, poverty was not low well-being but the inability to pursue well-being because of the lack of economic means. This lack may not always result from a deficiency of capabilities. Therefore, poverty is the failure of basic capabilities to reach minimally acceptable levels. In conclusion, most economic theories have not been able to comprehensively and effectively explain the phenomenon of poverty.

4. Measurements of poverty

The story of the development of poverty measures can be viewed as three historical stages. First, from 1892 and lasting for more than half a century was the headcount ratio of poverty measurement spearheaded by Booth (1892) and made popular by Rowntree (1901). According to Agola and Awange (2014) the head count ratio did not tell how far below the poverty line the poor are. The second stage includes the FGT measure which was developed by Foster et al. (1984). This measure decomposes a class of poor people. It takes into account the headcount ratio or the incidence of poverty, which is labelled $P\alpha = 0$. The depth of poverty is the poverty gap ratio denoted by $P\alpha = 1$. This gives the proportion of the average poor from the poverty line and it can be used to obtain the amount of resources needed by an average poor person to escape poverty, thereby eliminating absolute poverty. It has been said that the measure is insensitive to redistribution among the poor. A third measure, given as $P\alpha = 2$ gives the severity of poverty and produces the coefficientof variation of expenditure distribution of the poor, which reflects the degree of inequality among the poor. Meanwhile Agola and Awange (2014) posited that its monetary values were difficult to interpret.

Several poverty measures have been proposed in the literature, which are sensitive to income inequality among the poor. The Sen's Measure of Poverty gives the severity of poverty and reduces the co-efficient of variation of expenditure distribution of the poor, which reflects the degree of inequality among the poor. The Sen (1976) measure incorporates the number of poor, the poverty-gap and the transfer of income from the not so poor to a poorer person into his measure. Fishlow's Measure of Poverty expresses the poverty gap as a function of the income of the non-poor required to eliminate poverty. A variant of the FGT measure ($P\alpha$) was given by Ray (1989) and it combines additive decomposability with poverty aversion. The combination of FGT and Clark et al. (1981) criteria is expressed as the Additive Decomposability and Aversion Monotonicity Axiom.

It can be deduced that measurement of poverty is quite an important exercise as it provides a metric to measure progress towards poverty alleviation/eradication. However, the problem of arriving at a good measurement methodology is very much linked to the problems of definition of poverty. It is worthy of note that poverty alleviation approaches tend to put emphasis on different dimensions of poverty. There is general agreement that money income (or consumption) on its own is an imperfect measure of welfare. There are different views about the relative importance of non-monetary variables. While poverty can be broadly defined as an absence of well-being or capacities, it is multidimensional and manifests itself in various forms. This makes the definition of poverty inadequate if only one criterion is used. It should also be recognized that there is no single indicator that can adequately measure all dimensions of poverty. This justifies the use of a multidimensional approach for poverty measurement.

5. Methodology

5.1. Study area

The study was carried out in Oyo state, located in the South-West geopolitical zone of Nigeria. The state was one of the three States carved out of the former Western State of Nigeria in 1976 by the then Federal Military Government. The choice of Oyo state stemmed from the fact that it used to be the regional capital of Western Nigeria. By implication, the state consists of people from all states in the region and Nigeria at large. The Western region itself drives the Nigerian economy as over 60 percent of the economic activities in Nigeria take place in the South-Western region of the country. Oyo state consists of 33 Local Government Areas (LGAs). The State covers a land area of 27,249 square kilometres which is about 42 percent of the landmass of the south-western part of the country and it is bordered in the north by Kwara State, in the south by Ogun State, in the west, by Ogun State and the Republic of Benin, while it is bounded in the East by Osun State. The state has a population of about 4 million people (2006, Population Census)

5.2. Sampling techniques and sample size method of data collection

A multi-stage sampling technique was used to select households for the study. The first stage involved a random selection of five out of the eleven Local Government Areas (LGAs) in Ibadan metropolis. Therefore, Ido, Ibadan North, Ibadan South-East, Lagelu and Akinyele LGAs were selected. The second stage involved the random selection of ten villages/wards from each of the LGAs. In the third stage, eight households were randomly selected from each ward/village/streets giving a total of 400 households. The total number of questionnaires used for analysis (355) represented about 89 percent of the total number of questionnaires administered as 45 (representing about 11 percent) of the questionnaire were discarded due to incompleteness and dominance of visible outliers in the information given. Personal interviews were used to collect data from respondents using structured questionnaires as an interview guide. Data were collected on socio-economic characteristics such as the age structure of the households, educational level, assets holding, income, occupations, types of house, sources of drinking water, health status, access to healthcare, health seeking behaviour

and general living conditions etc.

5.3. Method of data analysis

5.3.1. Descriptive statistics

Frequency and percentage were used to describe the socio economic characteristics and living conditions of households.

5.3.2. The Multidimensional Poverty Index (MPI)

The Multidimensional Poverty Index is an international comparable poverty metric designed to measure acute poverty. Acute poverty refers to people living under conditions where they do not reach the minimum internationally agreed standards in indicators of basic functioning. It measures those experiencing multiple deprivations, people who for example, are both undernourished and do not have clean drinking water, adequate sanitation or clean fuel etc. This study applied Alkire and Foster's

Table 1: The MPI-dimensions, indicators' threshold and weights

Dimensions	**Indicators**	**Deprivation cut-off marks**
Health $\frac{1}{3}$	1.Nearness to health centre $\left(\frac{1}{9}\right)$	if there is no health centre around the household (within 5 km distance)
	2.Diet $\left(\frac{1}{9}\right)$	if household does not have food at home for at least one week in the last three months
	3.Health seeking behaviour $\left(\frac{1}{9}\right)$	if household does self-medication and patronise non-orthodox healing centres
Education $\frac{1}{3}$	1.Years of Schooling $\left(\frac{1}{6}\right)$	if household head does not have at least 12 years of schooling
	2.Nearness to public primary school $\left(\frac{1}{6}\right)$	if public primary school is ≥5km away
Standards of Living $\frac{1}{3}$	1.Access to electricity $\left(\frac{1}{18}\right)$	if household is not connected to the public power supply
	2.Households floors $\left(\frac{1}{18}\right)$	if household uses cow dung or bare mud/clay as floor or stays in a dirty environment
	3.Access to safe drinking water $\left(\frac{1}{18}\right)$	if household uses well or surface water as sources of drinking water
	4.Types of toilet $\left(\frac{1}{18}\right)$	if household uses pit-latrine, bucket or has no toilet facilities.
	5.Assets holding $\left(\frac{1}{18}\right)$	if household does not possess at least 5 of the total common assets listed
	6.Cooking fuel $\left(\frac{1}{18}\right)$	if household uses unclean /environmentally unfriendly methods such as wood and charcoal as cooking fuel

Source: Adapted from Alkire and Foster (2011) but modified to suit Nigerian situation.

(2007, 2011) approach to determine the level of deprivation among households surveyed. Therefore, a dual-cut-off method of identification was employed. This involved two steps which were the identification and aggregation methods. The identification method was used to identify various deprivations suffered among households and it involves setting a cut off for the various deprivations which was the first cut-off and also setting a poverty cut-off, which was the second cut-off and hence it is called the dual cut-off. If deprivation exceeds the poverty cut-off such household was considered as poor.

5.3.3. Multidimensional Poverty Measure

Table 1 was adapted from Alkire and Foster (2011) and slightly modified as appropriate to suit the socioeconomic setting being studied (South-west Nigeria in this case). It shows the dimensions and indicators that were used in the study as well as their various deprivation cut-off and weights assigned to each indicator. Therefore, the study started with evaluation of the achievement of the households in which individuals live to determine if there exists a deprivation in any of the above-mentioned indicators. Assuming x_i is the achievement of each household i in each indicator and z_i is the deprivation cut off. A household is considered deprived if its level of achievement is below the deprivation cut-off i.e. $x_i < z_i$. Following Alkire and Foster (2011) the study assumes positive or negative externalities within the household in such a way that if one of the household members is malnourished, all the household members are considered malnourished.

Each dimension receives equal relative weight w_i and is evenly distributed among the indicators of each dimension. Multidimensional deprivation P for each household is defined as the weighted sum of deprivations such that

$$\mathrm{Pi} = \sum_{i=1}^{d} Wi = 1$$

The next step was to assign a deprivation score for each household according to their deprivations, which is the aggregated deprivation, and this was done by taking the weighted sum so that the deprivation score for each household lies between 0 and 1. The score increases as the number of deprivations of the household increases and reaches its maximum of 1 when the household is deprived in all component indicators. A household that is not deprived in any indicator receives a score equal to zero.

A second cut-off or threshold is used to identify the multi-dimensionally poor, which in the Alkire-Foster methodology is called the poverty cut-off. For the analysis of this study it is assumed that the poverty cut-off k = 1/3**,** although, for the purpose of exposition and comparison, the k value was varied and multidimensional poverty was reassessed in each case.

In the light of the above, a household was considered poor if its deprivation score was equal or greater than the poverty cut-off. Formally, in the MPI, a household is identified as poor if the deprivation score is higher than or equal to 1/3. For those whose deprivation score is below the poverty cut-off, even if it is non-zero, this is replaced by a "0"; and this is referred to ascensoring in poverty measurement. To differentiate between the original deprivation score from the censored score, the censored deprivation score with the notation $P_i(k)$ was used. Note that when $P_i \geq k$, then $Pi(k)=P_i$, but if $P_i < k$, then $P_i(k) = 0$. $P_i(k)$ is the deprivation

score of the poor.

The computation of the multidimensional headcount ratio (H) to show the proportion of households who experience multiple deprivation is given by $H= \frac{q}{n}$. where q is the number of households that are multi-dimensionally poor and n represents the total population. The intensity (or depth) of poverty within the household, which is the average deprivation scores (A) of households that are multi-dimensionally poor, was determined by:

$$A = \frac{\sum_{i=1}^{n} Pi(k)}{q}$$

Therefore, the multidimensional poverty index is given as:

MPI= H×A.

6. Results and discussion

6.1. Socio-economic characteristics of households

Table 2 presents the socioeconomic characteristics of the sampled households. It was revealed that 68.2 percent of the sampled households were headed by males. About 71 percent of the household heads were within the ages of 40 and 60 years while the majority (79.2 percent) were married. Over 40 percent of the households had post-secondary school education and over 70 percent of the households had more than four people in their household with a mean value of five.

Living conditions of households

A fair proportion (42 percent) of the sampled households live in multi-tenanted (face-to-face) houses and the most common flooring materials used for these houses (48.2 percent) was concrete while about 30 percent used tiles. Only 25.9 percent of the sampled households had good toilet facilities. Similarly, the majority (56.1 percent) of the sampled households got their drinking water from deep wells while only 23 percent of the households had access to water from boreholes. About 36 percent of the households use kerosene as a source of cooking fuel, though only a few households (11 percent) were not connected to the public power supply (Table 3).

Other welfare indices

The results in Table 4 showed that close to 30 percent of the households engaged in self-medication in treating their various illnesses. Only 14 percent attended government hospitals and the major reason for this was the long distance from their houses to government health facilities. A majority (63.1 percent) of the households did not have health centres around their houses. A majority of the children attend public schools, although most of the public schools were built far away from their houses, while 39 percent of the households had access to credit facilities which were acquired mostly throughthe trading groups they belong to, such as farmers' and multi-purpose cooperative societies (Table 4).

6.2. Incidence of deprivation

Table 5 shows the incidence of deprivation among the households in the study area. Results indicated that the three (3) most occurring deprivations households suffered were lack of possession of at least five (5) out of the common assets listed (78 percent), lack of acceptable toilet (72.3 percent) and lack of nearness to health care facilities (72 percent). The inability of households to accumulate assets may encourage poverty because assets can be used as collateral to obtain a loan which may be invest-

Table 2: Socio economic characteristics of households

Variables	Frequency	Percentage %
Gender		
Male	242	68.2
Female	113	31.8
Marital status		
Single	11	3.1
Married	281	79.2
Separated	39	11.0
Widow/Widower	24	6.8
Age		
< or =30	19	5.4
31-40	78	22.0
41-50	91	25.6
51-60	87	24.5
61-70	49	13.8
Above 70 years	31	8.7
Mean=42		
Occupation		
Farming	50	14.1
Trading	128	36.1
Civil servant	103	29.0
Others	74	20.8
Educational level		
No formal education	34	9.6
Primary education	72	20.3
Secondary education	93	26.2
NCE/OND	64	18.0
HND/BSc	71	20.0
MSc/PhD	21	5.9
Household sizes		
>=2	31	8.7
3 – 4	73	20.6
5-6	107	30.1
7-8	77	21.7
Above 8	67	18.9
Mean=5		

Source: Field survey, 2015.

ed to generate income, improve livelihood and reduce poverty aside from streams of income some assets could generate directly. Carter and Barret (2006) asserted that assets can give an insight into the poverty structure of households.

The use of unacceptable toilets such as dirty, over-filled and partially collapsing pit latrines which are common in some households in the study area portends danger to the health and safety of the people. Various toilet diseases can be contracted and spread under such conditions. The health risk therefore is serious con-

Table 3: Distribution of households by living conditions

Variables	Frequencies	Percentage
Types of house		
Face-to-face	149	42.0
Boys quarter	85	23.9
Flat	109	30.7
Duplex	8	2.3
Mansion	6	1.7
Types of floors		
Concrete	171	48.2
Tiles	104	29.3
Marble	21	5.9
Terrazzo	29	8.2
Clay/Sand	27	7.6
Wood	3	0.8
Source of drinking water		
Borehole	85	23.9
Deep Well	199	56.1
Surface water	71	20.0
Types of toilet		
Pit latrine	220	62.0
Water closet	92	25.9
No facilities	36	10.1
Others	7	2.0
Types of cooking fuel		
Electricity	14	3.9
Gas	92	25.9
Kerosene	128	36.1
Charcoal/sawdust	47	13.2
Wood	78	22.0
Access to power supply		
No	39	11.0
Yes	316	89.0

Source: Field survey, 2015.

sidering the discovery that healthcare facilities were far away from most households, thereby limiting access to good health care. Lack of access to health-care facilities was the third most frequent deprivation. Amatyr Sen's capability theory of human welfare asserted that functioning (health) and capability were the two main components of human welfare. Therefore, human welfare is made worse off due to lack of access to healthcare facilities in the study area.

6.3. Deprivation count

Table 6 reveals that only 21 households representing 5.91 percent of the total number of households were deprived in only one out of the eleven (11) deprivations, while 7.9 percent were deprived in all the eleven indicators considered for the study. The majority of the house-

Table 4: Other welfare indices of households

Variables	Frequencies	Percentage
Health seeking behaviour		
Private hospitals	135	38.0
Public hospitals	51	14.4
Traditional/orthodox healing centre	71	20.0
Self medication	98	27.6
Schools attended by children		
Public school	243	68.5
Private school	112	31.5
Access to credit facility		
Yes	139	39.2
No	216	60.8
Nearness of household to health centres		
Yes	224	63.1
No	131	36.9

Source: Field survey, 2015.

holds were deprived in between three (3) and nine (9) deprivations out of the eleven deprivations considered. For instance, 13.24 percent of the households were deprived in three (3) indicators while 11 percent were deprived in eight (8) of the listed indicators. Hence, the majority were deprived in a noticeable number of indicators.

6.4. Identification of the poor under varied cut-off

It would be recalled that the eleven indicators of deprivation were grouped into three (3)

Table 5: Incidence of deprivation

Deprivation	Number of households	Percent
Nearness to Health Centre	257	72.0
Diet sufficiency	227	64.0
Access to healthcare	170	47.9
Years of Schooling	128	36.1
Nearness to primary school	185	52.1
Access to electricity	50	14.1
Acceptable material for flooring	121	34.1
Access to safe drinking water	227	64.0
Use of acceptable toilet	258	72.3
Possession of at least five of the total assets listed	277	78.0
Cooking fuel (use of clean/ environmentally friendly method	122	34.4

Source: Computed from Field Survey Data, 2015.

Table 6: Distribution of deprivation count

Count	Number of households	Percent
1	21	5.91
2	43	12.11
3	47	13.24
4	31	8.73
5	27	7.61
6	25	7.04
7	31	8.73
8	39	11.00
9	37	10.42
10	26	7.32
11	28	7.90

Source: Computed from Field Survey Data, 2015.

groups, namely health, education and standard of living, with each group having a weight of $^1/_3$ out of a weighted score of one (1). When the poverty cut-off was set at $k = {}^1/_3$, 69 percent of the households were identified as poor. Expectedly, when k was set at $^2/_3$, the number of poor households decreased to 157, representing 44.2 percent of the total households sampled. Furthermore, 7.9 percent of the households were identified as poor when k was set at $^3/_3$, i.e 1. Under this last scenario, a household must be deprived in all the listed indicators to be qualified as "poor".

6.5. The MPI: Adjusting the headcount ratio by intensity

Multidimensional poverty estimation in this study was based on three dimensions, which were Health, Education and Standard of living of the households. From the results, it was revealed that when k was set at $^1/_3$, sixty-nine (69) percent of the households were in acute poverty as revealed by the head count ratio (Table 8). They were deprived in at least either all the indicators of a single dimension, or a combination of indicators across dimensions, such as living in a household with clay floor, no good toilet, dirty floor and unclean sources of drinking water. The percentage of the poor reported in this study was far higher than those reported by previous studies carried out in the same region us-

Table 7: Identification when cut-off is varied

Cut-off K	Number of households	Percent
$\frac{1}{3}$	245	69.0
$\frac{2}{3}$	157	44.2
$\frac{3}{3}$	28	7.90

Source: Computed from Field Survey Data, 2015.

Table 8: Multidimensional Poverty at varied cut-off

Count	Head Count (H) $=\frac{q}{n}$	Poverty Intensity (A) $=\frac{\sum_{i=1}^{n} Pi(k)}{q}$	MPI (Mo) = H*A
$\frac{1}{3}$	0.690	0.650	0.450
$\frac{2}{3}$	0.442	0.416	0.184
$\frac{3}{3}$	0.079	0.074	0.006

Source: Computed from Field Survey Data, 2015.

ing the money-metric method of Foster, Greer and Thorbeck's (FGT) index. For instance, Akerele and Adewuyi (2011) reported 38 percent in Ekiti State; Olawuyi and Adetunji(2013) reported 45 percent among rural households in Ogbomoso agricultural Zone in Oyo State; Adebayo (2013) reported 36 percent among households in Irewole Local Government Area of Osun State, while Akinbode (2013) reported 34 percent, all in south-west Nigeria. The relatively higher percentage reported in this study may be due to the robustness and the perceived superiority of the multidimensional approach.

Furthermore, Table 4 shows that the average poor household in the study area was deprived in 65 percent of the weighted indicators. The MPI represents the share of the population that is multi-dimensionally poor, adjusted by the intensity of the deprivation suffered. This adjustment is necessary because if only the Head Count Ratio (H) was considered, it merely shows that 69 percent of the population were poor. Meanwhile, they were not equally poor and they were not deprived in 100 percent of all the deprivations considered. The average poor household in this study was deprived in 65 percent of the weighted indicators. This was revealed by the intensity of poverty (A), which was 65 percent. The 69 percent figure is "adjusted" by the intensity of poverty, and that is why the MPI is what Alkire and Foster (2007, 2011) called the Adjusted Headcount Ratio. However, because they (69 percent of the households) were on the average deprived in 65 percent of the weighted indicators, the average household in the study area can be said to be deprived in 45 percent (MPI) of the total potential deprivations it could experience overall (Table 8).

Furthermore, when k was set at $^{2}/_{3}$, the head count ratio (H) was 0.442 with a poverty intensity (A) value of 0.416 and MPI of 0.184. Under this scenario, it can be summarized that average household in the sample were deprived in 18.4 percent (multidimensional poverty) of the total potential deprivation it could suffer. Furthermore, when k was set at $^{3}/_{3}$, i.e 1, MPI was 0.006, which implied that under such a scenario the average household was deprived in 0.6 percent of the total potential deprivations it could suffer. The value of H=0.079 implied that 7.9 percent of the sampled households

were classified as poor (Table 8). The falling indices and incidence of poverty with an increasing value of *k* as observed in this study is in line with the findings of Adeoti and Popoola (2012) in a study of multidimensional poverty of rural children in Nigeria.

6.6. Poverty profile by households' socio-economic characteristics

Table 9 shows the breakdown of incidence and depth of poverty by households' socioeconomic characteristics. It is worthy of note that the breakdown carried out here was based on $k = {}^{1}/_{3}$. It was revealed that the poverty head count was higher (81 percent) among female-headed households compared with male-headed households' head count of 62 percent. This finding supports the concept of *feminization of poverty* where it has been widely believed that females and female-headed households are likely to be poorer than their male counterpart, partly due to limited access to productive resources such as land and credit among other sociocultural constraints limiting the potentials of the female folks.

Table 9: Poverty profile of households by socioeconomic characteristic at $K={}^{1}/_{3}$

	Head Count (H)	Poverty Intensity (P)	MPI =H*A
Gender of household head			
Male	0.62	0.58	0.36
Female	0.81	0.76	0.61
Marital status of household head			
Married	0.61	0.57	0.35
Single	0.76	0.71	0.54
Divorced/Separated	0.73	0.68	0.48
Age of household head			
≤40	0.80	0.75	0.60
41 – 60	0.57	0.53	0.30
Above 60	0.45	0.42	0.19
Occupation of household head			
Farming	0.83	0.77	0.64
Trading	0.62	0.58	0.36
Civil Service	0.51	0.48	0.24
Private Company workers	0.54	0.51	0.27
Artisans/Self Employed	0.56	0.53	0.30
Educational Level			
No Formal Education	0.85	0.80	0.68
Primary School	0.74	0.70	0.52
Secondary School	0.68	0.64	0.44
Higher Institution	0.42	0.40	0.17
Household Size			
≤4	0.58	0.55	0.32
5-8	0.77	0.73	0.56
Above 8	0.83	0.78	0.65

Source: Computed from Field Survey Data, 2015.

In terms of the marital status of household heads, households headed by married people were less poor (61 percent) compared with those headed by single (73 percent) and divorced/separated among whom 76 percent of the households were classified as poor. It is a common practice for married couples to pool resources together to acquire assets and for investment which may take the household out of poverty. The foregoing is almost not possible for single and divorced individuals.

Furthermore, poverty indices (head count, intensity and MPI) reduced with increased age of the household head. This may be interpreted that older household were less poor compared with younger households. It is likely that older households have more income generating investments, assets/properties and might be enjoying remittances from their children living and working elsewhere. Younger households are likely to have a number of children in primary and secondary schools for which they carry some responsibility, including the struggles to acquire property like houses, farmlands and vehicles among several others which weigh heavily on their often limited resources. Households headed by farmers had the highest poverty incidence (83 percent) compared with those headed by people engaged in other occupations. Poverty being endemic among farmers was a mirror to the underdeveloped level of agriculture in Nigeria. The majority of Nigerian farmers are poor due to lack of access to credit, land tenure problems, lack of storage facilities for agricultural output, which usually results in high postharvest losses, lack of mechanization, unstable prices and sometimes unfavourable government policies.

In addition, poverty incidence reduced with increased education (Table 9). This underscored the importance of human capital development through education as a means of reducing poverty. Educated individuals are better positioned to get better paying jobs and are likely to live within an acceptable lifestyle. Finally, poverty increased with increased household size (Table 9). This confirms that a high dependency ratio puts pressure on household resources, thereby increasing the incidence of poverty among households.

7. Conclusion and recommendation

Based on the findings of this study, it can be concluded that the majority of the households in the study area were multi-dimensionally poor, even with varying cut-offs. They lived in conditions that depicted poverty. Most of the households lived in multi-tenanted (face-to-face roomed) houses and used pit latrine toilet facilities. The majority of the households had access to electricity but lacked a good source of drinking water and used unclean fuel sources such as charcoal, firewood, sawdust and kerosene stoves and the environmental implication of these may be far reaching. The possible negative effect may include deforestation, erosion, loss of the air purifying function of forest trees etc. Health-care centres and primary schools were far from most households. Households patronize medicine shops and engaged in self-medication for treatment of their various illnesses. Most households use concrete floors, although a noticeable number still use ordinary clay/mud and sand as their flooring material and live in a dirty environment.

A breakdown of poverty by households' socioeconomic characteristics revealed that

female-headed households were poorer than male-headed households. Married households were less poor compared with single and divorced household heads. The older the household heads the lower the incidence of poverty among the households. It is worthy of note that poverty was higher and more pronounced among households headed by farmers compared with those headed by individuals engaged in other occupations. Poverty reduced with an increased educational level of household heads while the poverty incidence increased with increased household size.

Based on the findings of this study, it is recommended that government policies be geared towards: encouraging schooling (by building schools in the neighbourhood of new settlements in major cities in the region), making available free or highly subsidized family planning (to avoid large household size), the diversification of income sources (in order to improve household incomes), ensuring that existing environmental and sanitation laws are enforced in order to promote good hygiene, and adoption of improved toilet and waste disposal practices. Furthermore, government may help in financing the construction and running of community health centres in the area while appropriate health enlightenment is embarked upon in order to improve the health-seeking behaviour of the people.

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