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Multidimensional Poverty Index of Niger State, Nigeria

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Abstract

Past studies have tended to focus on measuring monetary poverty based on poverty line income; thus, this study aims to investigate the monetary poverty and the multidimensional poverty index (MPI) of 432 households in Niger State, Nigeria. Interestingly, the results indicate 13 per cent of those above poverty line income (non-poor) are found to be multidimensional poor. Hence, this paper suggests that the monetary measure of poverty should be complemented with multidimensional measure. The results of this study also show poverty is apparent in essential living standard and health among the households as spelled out by inadequate access to portable drinking water, poor sanitary facilities, electricity supply, primitive cooking fuel as well as limited access to improved health facilities. The results imply that effective policies towards general infrastructural development will greatly contribute to poverty reduction.

Keywords: Monetary Poverty, Multidimensional Poverty, Poor, Poverty Line, Nigeria

Introduction

Poverty hinders the economic development and it promotes absence of economic prospect among households; Ogbeide and Agu (2015) suggest income inequality fosters the absence of opportunities among the households. Poverty is regarded as a universal disease which negatively affects Human Development Index (HDI), lessening people's lifespan and schooling level, as well as promoting high fertility rate (Mariyanti and Mahfdz 2016). World Bank (2015a) defines absolute poverty as living on or below \$1.90 per day; on this note, World Bank (2015b) states 9.6 per cent (%) of the world's population living in severe poverty. In Sub-Sahara Africa region, about 35.2% of her population lives in absolute poverty and approximately, 70% of the Nigeria population lives in extreme poverty while in Niger State alone, about 61.2% of her population lives in absolute poverty (World Bank 2017).

In the context of Nigeria, past studies such as Obah and Onuoha (2013), Ogbuabor et al. (2013), Ibrahim and Ladan (2014), and Mamman et al. (2015) measure poverty based on monetary, whereby a person or household is poor if his or the household income is below the poverty line income. Though this is straight forward, income poverty fails to capture multiple deprivations of education, health and standard of living dimensions (Oxford Poverty and Human Development Initiative 2016). Hence,

this motivates this study to embark on assessing the monetary poverty as well as MPI. MPI is a global measure of severe poverty that supplements the income-based measures of poverty by considering the multiple deprivations face by people at the same time. The MPI recognizes deprivation within health, education and living standards, and reveals the amount of people that are multidimensional poor and the rate of deprivations face by household. The MPI covers an aggregate of 102 countries collectively with 75% of humankind and 30% of this amount indicates 1.6 billion people are recognized as multidimensional poor (World Bank 2017). It is noteworthy about 55% of Nigerian are multidimensional poor with 17.8% are tended to multiple deprivations (Dauda 2016); in this vein, Alkire et al. (2016) suggest African countries at large (54%) live in multidimensional poverty.

The MPI focuses on three dimensions namely education, health and standard of living and consists of ten indicators. While the education dimension comprises year of schooling and school attendance; health dimension consists of child mortality and nutrition; last but not least, the standard of living dimensions covers electricity, sanitation, water, floor, cooking fuel and assets. Table \ presents the trends MPI in Nigeria between 2003 and 2016. It shows that as at 2003, 63.6% Nigeria residents are multidimensional poor experiencing MPI of 0.368, i.e. countrywide, the larger proportion of residents of the country are deprived of more than one third (33.33% or 0.33) of the three dimensions or ten indicators of poverty, while as at 2008, 2013 and 2016, the MPI experienced were 0.313, 0.311 and 0.303 in that order which implied that Nigeria residents were not multidimensional poor but having high openness to multiple deprivations, that is, having more than 20% and less than 33.33%.

One of the noteworthy features of MPI is it reveals the interrelated deprivations experience by members of a household through information about the combine distribution of deprivations linked to the MDGs, which demonstrate the intensity and the components of numerous features of poverty simultaneously (Alkire and Santos 2010).

Table \: Trends in MPI in Nigeria (2003 -2016)

Year	H (Incidence)*	A (Intensity)**	MPI (H x A)
2003	63.6%	57.90%	0.368
2008	54.70%	57.30%	0.313
2013	54.40%	57.20%	0.311
2016	53.30%	56.80%	0.303

Note: * poor people or head count ratio.

** The strength or intensity of their poverty.

Source: Oxford Poverty and Human Development Initiative (2016)

The remainder of this study proceeds as follows. Next section offers the theoretical studies as well as a review of empirical studies on the determinants of poverty follows by the data and methodology section. The subsequent section presents the empirical results while the last section concludes the paper and presents the future research directions.

Literature Review

Hitherto to 1970s, the poor were numerically identified basically by household income, aligned with family size, compare with a particular poverty line income. The poverty line aimed to assign a monetary value to the required minimum for the upholding of simply physical efficiency such as food, clothing, rent, light, fuel and the like (Afonso et al. 2015). During mid-1970, the measurement approach of basic needs along with others for example social exclusion and capability approach were mandated for focusing at the real satisfaction of basic needs which led to the determination of a list of basic needs accompanied by minimum levels of satisfaction (Alkire et al. 2015), which was refers to as the direct method of poverty classification. The measure of human deprivation is based on the shortfalls from minimum points of basic needs rather than using income as an agent of basic needs satisfaction. This is based on the argument that, even though an improvement in purchasing power lets the poor to favourably accomplish their basic needs, the market for some basic needs may not at all times exist. Certainly, a lot of basic needs are public amenities (Allen, 2015) elementary education for example. Owing to this, a lot of studies since 1980s have confirmed that income is not a substitute to non-monetary deprivations for the identification of the poor.

According to Alkire et al. (2015), various methods to measure poverty from the multidimensional point of view were developed over the years, including the dashboard approach with Millennium Development Goals (MDGs); the composite indices approach with Human Development Index (HDI), Gender Empowerment Index (GEI) and Human Poverty Index (HPI) as an examples; multivariate statistics with set of weighted indicators and deprivation scores and; fuzzy sets which statistically identify the poor draw on less normative judgement.

The Alkire-Foster counting approach is one of the recently developed counting methods and was adopted by the United Nations Development Program (UNDP) in 2010 (Alkire and Santos, 2010) with the supported of Oxford Poverty and Human Development Initiative. The MPI complements monetary poverty measurement with statistics on join deprivation faced at the same time by individuals (Dotter and Klasen, 2014). It categorises deprivations in the similar three dimensions like the Human Development Index (education, health and standard of living), and identifies the number of people that are poor multi-dimensionally (i.e. deprived of at minimum one third of the dimensions) alongside the degree of deprivations experienced by the poor therefore tellingly the poverty incidence and intensity in a particular region in a particular time (Nawar, 2014). MPI can as well be decomposed either by dimension or groupings (for example, region, and ethnicity among others) with practical implications for policy (Gabel and Zhang, 2017).

This recent technique has been realistic in many countries of the world. National Statistics Bureau (2014) measures multidimensional poverty in Bhutan. It maintains the three dimensions of education, health and standard of living in the global MPI; thirteen indicators were used based on Bhutan priorities. Two indicators each for education (school attendance and schooling) and health dimensions (child mortality and food security) with nine indicators within standard of living dimension (electricity, water, housing, road, cooking fuel, sanitation, land, livestock and asset). The result indicates that the largest contribution to national poverty is deprivation in years of schooling

(30%), succeeded by child mortality (14%) and school attendance (13%). Another study was conducted by Government of Nepal National Planning Commission (2018); measuring MPI using the recent data from the Multiple Indicator Cluster Survey (MICS) 2014. It applied same three dimensions as the global MPI i.e. education, health and standard of living. It uses nine indicators, and adjusts only standard of living indicators by which flooring and roofing is considered as housing indicator. The result shows that the indicator that contribute largely to the Nepal multidimensional poor are undernourishment and member of household who has lack completed five years of schooling.

Furthermore, Dhongde and Haveman (2015) measure MPI in the US, consists of eight indicators from the American Community Survey in 2011. They use four dimensions with eight indicators there in: Health (health insurance and disability), education (year of schooling and English fluency), standard of living (income poverty and employment status) and housing (housing cost and crowded house). The result reveals that one in five American's adults were multidimensional poor, and absence of health insurance and acute housing burden were the two major indicators of deprivation.

Methodology

To obtain data for this study, a survey research design was adopted and a 54-item questionnaire was used as an instrument for data collection from households in Niger State of Nigeria. Employing the cluster sampling, eight Local Government Areas (LGAs) with the highest poverty rate were chosen out twenty-five LGAs and next, data were collected from 520 households selected through a convenience sampling. This questionnaire was used to source information on the three dimensions along with the ten indicators therein of the multidimensional poverty. Out of 520 questionnaires distributed, 432 were returned.

The technique of data analysis employ in analysing the data collected includes: Alkire and Foster Methodology (AFM) of the global MPI with three dimensions and ten indicators. The AFM was used to construct the MPI of the households in Niger State, Nigeria.

Model Specification

MPI model

$$\text{MPI} = H * A$$

(Eq. 1)

therefore

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

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

where:

H = the proportion or ratio of people who face multiple deprivations

A = the intensity or strength of their deprivation

q = the number of people that are multidimensional poor

n = the total population

c_i = individual deprivation score

k = the poverty cut-off (0.33)

$c_i(k)$ = censored score (if $c_i \geq k$, in this case, $c_i(k) = c_i$, in contrast if $c_i < k$, in this case $c_i(k) = 0$)

Results and Discussion

Table 7: Headcount Ratio of Monetary and Multidimensional poverty (%)

Local Government Areas	Monetary Poverty	Multidimensional Poverty
Lavun	83	81
Gurara	63	49
Bosso	63	75
Tafa	58	28
Agaie	70	60
Rijau	61	65
Bida	55	57
Munya	85	58
Average	67.25	59.25

Source: Field Survey, 2018

Table 7 shows index of headcount ratio for the eight Local Government Areas of Niger State, Nigeria being the focus areas as stated in the methodology. The average poverty indexes of the two measurements in 2018 are 67.25% (for monetary poverty) and 59.25% (for multidimensional poverty). The study area being a developing economy, a little difference (i.e. 8%) occurs in the result of both monetary and multidimensional measurement. Munya LGA recorded the highest rate of monetary poverty having 85% and that of multidimensional poverty is established in Lavun LGA (81%), whereas the least rate of monetary poverty is recorded in Bida LGA having 55% and that of multidimensional poverty is established in Tafa LGA (28%). The LGA that recorded the highest percentage point dissimilarities in the poverty result between income and multidimensional poverty is found in Munya having a difference of 30%. However, it has been established by this study that people identified as MPI poor are poorer in terms of monetary poverty.

Figure 1 depicts the percentage of person that is experience the cut-off for every indicator within the three dimensions. For electricity, the cot-off is any household that has no stable electricity, 100% of the households are deprived in electricity, the same realised in other indicators of living standard dimension of cooking fuel, sanitation and drinking water having deprivation percentage of over 70% and none is deprived of flooring and assets. This outcome indicates that almost all the households in Nigeria have no access to stable electricity, modern cooking fuel, improved sanitation and portable drinking water.

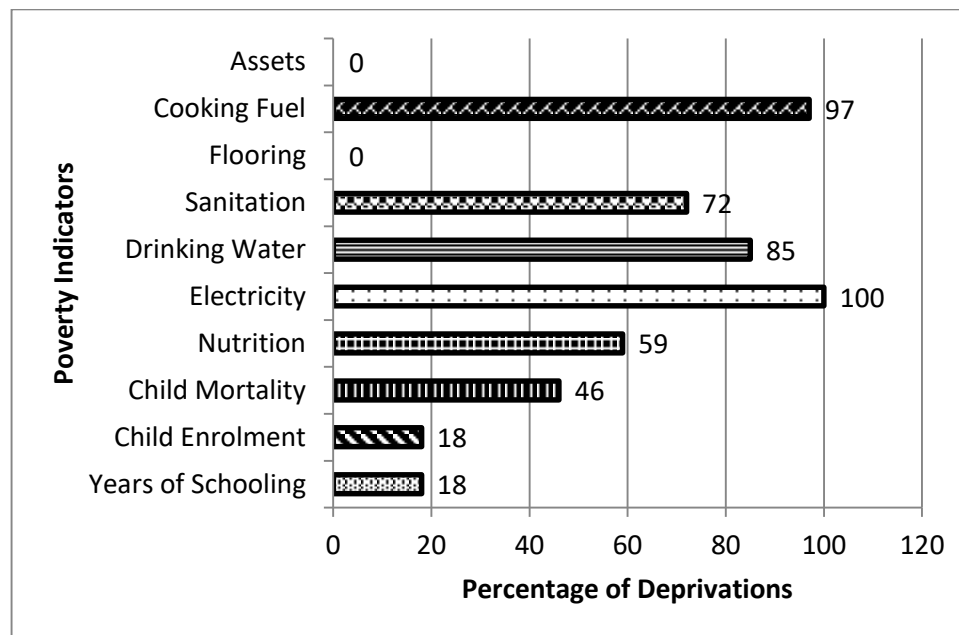


Figure 1: Deprivation Percentage on Various Indicators

Source: Field Survey, 2018

Though Nigerian government has been seriously committed to fixed power supply in the last nine years, but despite huge resources invested in it, it has not yield fruitful result. For health, 59% of the households suffer severe undernourishment and 46% of the household experience loss of two or more household members in the three years preceding the survey. The donor agencies and individuals couple with government have initiated many health programs targeting improve health for all, though the result seems very slow. For education, only 18% of households were deprived of having a member 10 years and above that have not complete five years of schooling, and also 18% of the household's child not attending school to the age he/she will finish class six. This figure depicts that only a few of households were deprived of education dimension, this is as a result of free basic education for the first nine years of schooling initiated by the Nigerian government.

Table Ƴ depicts the contribution of every single dimension in the entire multiple deprivation faced by LGA with the highest (Lavun) and lowest (Tafa) multidimensional poor. For Lavun LGA, standard of living contributed the highest deprivation experienced by multidimensional poverty having 59.49%, while that of education and health is somewhat equal and lower having about 20%. For Tafa LGA, standard of living still contributed the highest (81.2%) then followed by health (17.09%). However, to reduce the multidimensional poverty level, government should concentrate more on general infrastructural development and little on health in both LGAs, then also little on education in only Lavun LGA.

Table 3: Contribution of each dimension (%) in Tafa and Lavun LGAs

Dimensions	Tafa LGA	Lavun LGA
Education	1.71	19.76
Health	17.09	20.75
Standard of Living	81.2	59.49

Source: Field Survey, 2018

Table 4 depicts a cross tabulation of 432 households sampled from Niger State, Nigeria being categorized in every one of two poverty measures as non-poor or poor. About 13.0% of the households are non-poor in the measurement of monetary poverty, while they are poor in multidimensional poverty measurement. Conversely, 19.0% of the households are regarded as poor in monetary poverty are also non-poor in multidimensional poverty. This demonstrates a robust proof that monetary poverty measurement alone does not adequately describe deprivations experience by the poor.

Table 4: Cross Tabulation between Monetary and Multidimensional Poverty

		Multidimensional Poverty	
		Non Poor	Poor
Monetary Poverty	Non Poor	77	56
		17.8	13.0
	Poor	82	217
		19.0	50.0

Source: Field Survey, 2018

Conclusion

This study determines to assess non-income multidimensional poverty in Niger State of Nigeria using an approach advanced by Alkire and Foster which constitute novelty in the literature. It investigates three dimensions of deprivations: education, health and standard of living with ten indicators therein. The study discovers that about 60% of the population is multidimensional poor. Living standard is established as the main contributor to multidimensional poverty in Nigeria.

The paper also looks at the link between monetary and multidimensional poverty. The study discovered that there exists 8%-point difference in the headcount ration of poverty by using the two measurements. Despite the existence of little differences between the two measurements which is as a result of Nigeria being a developing economy, complementing income measurement with that multidimensional one explain clearly the multiple deprivations face by the poor. About 13.0% of the households that monetary poverty measurement considers them to be non-poor are multidimensional poor. Therefore, monetary approach of uni-dimensional poverty measurement is not sufficient measurement of poverty.

This study is first of its kinds in the Niger State of Nigeria and therefore filled the literature gap in the state. The study clarifies about the minimum deprivations an individual will experience to be classified as multidimensional poor. In general, Niger State is classified as a multidimensional poor and standard of the living dimension of poverty is the major contributor, however, effective policies towards general infrastructure development will greatly contribute to poverty reduction.

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