



Determinants of wealth status among rural and urban households in Nigeria

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Abstract

In the past, the idea was prevalent that wealth for some people in a population will translate into wealth for all. Today, evidence reveals that there is a wide gap between the richest and the poorest in most economies especially Nigeria. This study was conducted to estimate the determinants of wealth status among rural and urban households in Nigeria. Secondary data and sample design used for this study was adopted from the 2013 Nigerian Demographic and Health Survey (NDHS) carried out in Nigeria. The sample used for the study was nationally representative and a total of 8658 households were sampled from the six geopolitical zones in the country. The data were analyzed using descriptive statistics, principal component and ordered probit models. Results revealed that about 67.4% of the respondents reside in the rural areas. Majority of household heads were male and their mean age was about 38 years. The result of the ordered probit model revealed that significant variables determining wealth status in the study area are age of household head, type of place of residence, literacy, number of years of education, and number of household dependents among others. Based on these findings, the study recommends that interventions in terms of good quality education and other basic amenities should be provided for people residing in the rural areas as rural people form the lion share of respondents in the study area. The economic status of households can be improved through access to productive assets through credit associations and indigenous savings.

Keywords: Wealth status, rural, urban, households, determinants, Nigeria.

Introduction

Nigeria is endowed with huge human and natural resources and currently has a swelling population of over 180 million people. However, more than 60 percent of the population lives on less than US\$ 1 per day. Though on the political front, Nigeria has maintained a democratic government ushering in an era of opportunity for development, poverty reduction and wealth creation. On the contrary, Nigeria manifests many contradictions, such as being a rich nation of poor people and decaying infrastructure; an importer of fuel while possessing crude oil and from time to time the nation contends with regular fuel scarcity despite being the 6th largest producer of oil in OPEC. Nigeria has about 79 million hectares of arable land and over 3 million hectares of irrigable land and yet two – third of the populace is hungry and many are experiencing extreme poverty (Oxfam Report, 2019).

Despite the fact that Nigeria is seen as Africa's largest economy and one of the fastest growing in the world, more than half of the Nigerian population still grapples with extreme poverty while a small portion of its population enjoys ever growing wealth. Records show that poverty affects an estimated 67 percent of the population and there are many people who live without sufficient means to support themselves or their families (Borgen Project, 2018).

There is a great disparity between the rich and the poor in Nigeria such that the amount of money that the richest Nigerian man earns annually from his wealth is sufficient to lift 2 million people out of poverty for one year. The proportion of Nigerians living in poverty is increasing every year despite the fact that the Nigerian economy is growing. The population of people living in absolute poverty has risen from 54.7 percent in 2004 to 67 percent in 2018. National Bureau of statistics records show that poverty is most apparent in the northern part of Nigeria with certain northern states having a poverty rate near 86 percent (NBS, 2018; Borgen project, 2018).

Another recent report from the National Bureau of Statistics revealed that income inequality grew worse in Nigeria between 2004 and 2013 but improved in 2016. This records showed that income inequality as measured by the Gini grew worse from 0.356 in 2004 to 0.41 in 2013 but improved to 0.391 in 2016. On the other hand, while using consumption as a proxy for income in 2004 the bottom 10% of the Nigerian population consumed 2.56 % of goods and services while the top 10 % consumed 26.59% of all goods and services (NBS, 2018).

Until the 1960s and prior to the oil boom, Nigeria was among the world's leading producers, a net exporter of agricultural products including cocoa, groundnut, rubber, cotton, hides and skin. The reverse is the case today that Nigeria is a net importer of raw materials and food and faces the risk of food crisis. Though the Niger delta region is the main generator of foreign exchange and government revenues, it is now one of the most neglected regions in Nigeria. The Niger Delta suffers from the environmental impact of oil production on agriculture, fishing and other traditional sources of livelihood. The number of elected women in politics, at less than 7 % remains the lowest in West Africa. The country has however made strides in appointing women to key positions never before held by women, including strategic ministries of Finance and Petroleum as well as Education and Aviation. Nonetheless, there are concerns about achieving the recently developed sustainable development goals with human, women's and children's rights still widely violated (Oxfam International, 2019). It is now a non-contending fact that Nigeria is currently in a serious state of poverty and economic inequality.

Wealth Distribution and Income Inequality in Nigeria

Today, evidence from a global report reveals that the gap between the richest and the poorest has become wider than before now. Economic inequality in Nigeria has reached extreme levels, despite being the largest economy in Africa. The country has an expanding economy with abundant human capital and economic potential to lift millions out of poverty but more than half of the population is poor (Oxfam International, 2018).

The global economic record shows that the combined wealth of Nigeria's five richest men (\$29.9 billion) could end poverty at a national level yet 5 million people face extreme hunger. More than 112 million people are living in poverty in Nigeria yet the country's richest man would have to spend \$1 million a day for 42 years to exhaust his fortune. The amount of money that the richest man can earn annually from his wealth is sufficient to lift 2 million people out of poverty for one year.

Women represent between 60 -70 percent of Nigeria's rural labour force but are five times less likely to own their own land than men. Women are also less likely to have had a decent education. Over three quarters of the poorest women in Nigeria have never been to school and 94% of them are illiterate. Poverty and Inequality in Nigeria are not due to lack of resources but to the ill use, misallocation and misappropriation of such resources. At the root of this problem is a culture of corruption combined with political elite out of touch with daily struggles of average Nigerian.

In 2012, Nigeria spent 6.5 percent of its national budget on education and just 3.5 percent on health (By comparison, Ghana spent 18.5 percent and 12.8 percent respectively in 2015). As a result, 57 million Nigerians lack safe water, over 130 million lack adequate sanitation and the country has more than 10 million children out of school. Today, Nigeria is currently totally dependent on the oil industry while other sectors are declining. A report by Brookings Institution revealed that Nigeria has overtaken India as the world's poverty capital. There is an urgent need for a coherent and

comprehensive economic reforms for Nigeria to bring her out of its current devastating state of poverty and inequality.

Table 1 reveals the wealth inequality and human development index of some selected countries including Nigeria from a World Bank report. The data shows that Nigeria has a wealth Gini index of 69.50, an unemployment rate of 53.60 %, a poverty rate of 77.60 % and a life expectancy of 47.70 years.

Table 1: Wealth Inequality and Human Development Index of Some Selected Countries

Country	Net Income Gini Index	Wealth Gini Index	GDP Per Capita (USD)	Employment Rate (%)	Median Daily Income (USD PPP)	Poverty Rate (%)	Life Expectancy (Years)
Nigeria	39.00	69.50	2,458	53.60	1.80	77.60	47.70
Cameroon	39.80	74.10	1,357	72.70	3.60	45.00	50.30
Ghana	38.30	66.10	1,708	72.60	4.40	34.90	55.30
Kenya	41.60	77.20	1,143	59.80	N/A	N/A	55.60
Uganda	37.60	68.60	14,071	83.10	2.50	66.60	54.00
United States	37.80	85.90	52,195	58.90	48.90	16.80	69.10
United Kingdom	32.80	73.50	41,603	59.60	39.40	10.90	71.40
Switzerland	29.30	69.40	75,726	65.40	55.60	7.80	73.10
Australia	33.20	65.20	55,671	60.90	44.40	12.80	71.90
Canada	31.20	73.50	50,232	60.80	49.20	12.60	72.30
China	51.00	78.90	6,894	67.50	7.70	12.10	68.50
France	29.90	70.20	42,013	49.70	44.70	8.20	72.60
India	47.90	83.00	1,861	51.90	2.90	60.40	59.60
Japan	29.90	60.90	47,608	57.20	34.80	16.10	74.60

Source; The World Economic Forum's Inclusive Development Index 2018. N/A – Not available

These indices appear to be one of the lowest recorded for any country as compared to some developed countries like France, United Kingdom and Switzerland and it further shows the current state of wealth inequality in Nigeria as revealed on table. In lieu of these facts, this study seeks to determine factors influencing wealth status among rural and urban dwellers in Nigeria and thereby proffer recommendations that could reduce wealth inequality in the country.

Methodology

Study Area

The study was carried out in Nigeria. Nigeria lies on the west coast of Africa and it exists between latitude 4° 16' and 13° 53' north and longitude 2° 40' and 14° 14' east. It occupies a land area of 923, 768 square kilometers which stretches from the Gulf of Guinea on the Atlantic coast in the southern part and the Sahara Desert in the northern part; the Republic of Cameroon is on the east while on the west is the Republic of Benin (NPC AND ICF International, 2014).

Nigeria is one of the most populous countries in Africa and the country's population is estimated to be over 140 million according to the 2006 population and housing census in Nigeria. Currently, there are speculations that the country's population will be about 180 million. Nigeria has a tropical climate with both the wet and dry seasons. The dry season occurs from October to March while the wet season occurs from April to September. Presently, Nigeria is made up of 36 states and a Federal capital territory grouped into six geopolitical zones.

Methods of Data Collection

Secondary data and sample design used for this study was adopted from the 2013 Nigerian Demographic and Health Survey (NDHS) carried out in Nigeria. The sample used for the study was nationally representative and covered the entire population. The adopted sampling frame was obtained from the list of enumeration areas (EAs) prepared for the 2006 population census and provided by the National Population Commission. The sampling unit referred to as cluster in the 2013 NDHS is the

EAs from the 2006 census frame and each cluster includes about 45 households. This sample was selected by using a stratified three – stage cluster design consisting of 904 clusters, 372 urban areas and 532 rural areas. A representative sample of 40,680 households were used for the NDHS study, out of which data for 8,658 households were selected from the six geopolitical zones and their information was used for this study.

Methods of Data Analysis

Construction of the wealth index and wealth status

The wealth index approach was used in determining the wealth status of the households in the study. In order to calculate the wealth index, principal component analysis was used to generate factor scores for each variable in the data set and these factor scores were obtained from the first principal component analysis. The factor scores, mean values and standard deviation values of each variable declared were used in computing wealth index through the use of the model as it appears in equation (1).

In order to determine the poverty line, the entire population of all the households in the data set were divided into quintiles based on their wealth index i.e (20%, 20%, 20%, 20% and 20% groups) following the works of Filmer and Pritchett,1998; Sahn and Stifel,2003; Doss, 2006 and Deere and Doss,2006.

Through these already computed wealth index, the households were grouped into five categories using the first top 20 % as the Richest category, the next 20% as the Richer category, the third next 20% as the Middle category, the fourth next category as the Poorer category and the bottom20% as the Poorest category.

Principal Component Analysis

The statistical procedure used for the determination of weights or factor scores for an index of wealth variables is the principal component analysis. It is useful in extracting from a set of variables those orthogonal linear combinations of variables (Components) that best captures the common information most successfully. It is the first principal component analysis that is the linear index of variables and has the largest amount of information common to all the variables. The principal component is considered due to a sharp decrease in the proportion of explained variance in the components. The corresponding eigenvector to the first principal component is the vector of weights for the explanatory variables forming the first principal component. The corresponding weight for each explanatory variable is then used to calculate the wealth index for each household in the sample. The model presented in equation (1) was used to calculate the wealth index (A_j) for the j th household.

$$A_j = f_1 * (a_{j1} - a_1) s_1 + \dots + f_n (a_{jn} - a_n) / s_n \dots \dots \dots (1)$$

$$A_j = \sum_{i=1}^n f_i (a_{ji} - a_i) / S_i \quad \begin{matrix} (i=1 \dots \dots \dots n) \\ (j=1 \dots \dots \dots n) \end{matrix}$$

Where A_j = wealth index for each household ($j = 1 \dots \dots n$).

f_i = the scoring factor (Eigen vector for each durable asset of household ($i = 1 \dots \dots n$))

a_{ji} = the ownership of the i th asset for the j th household, where 0 represents not owning the asset and 1 represents owning the asset

a_i = the mean of the i th asset of household ($i = 1 \dots \dots \dots n$)

S_i = the standard deviation of the i th asset of household ($i = 1 \dots \dots \dots n$)

The model presented in equation (1) has also been used by Phusit, (2003); Povoroznyk, (2006); Filmer and Pritchett,(1998); Filmer and Pritchett, (2001): in creating wealth index and categorizing households into poor and non-poor groups.

Following related empirical literature on the use of wealth index in wealth status analysis, the works of Povoroznyk (2006); Phusit (2003); Sahn and Stifel (2003) and other studies, the variables included in the wealth index were placed into three categories as follows;

- (1) Housing quality
- (2) Household or consumer durables
- (3) Human capital

The list included in the wealth index is as follows;

1. Characteristic of household dwelling

- (a) Type of roofing material (Iron roofing score 1, other types score 0)
- (b) Type of floor material (Cemented floor score 1, mud floor score 0)
- (c) Type of wall material (Cemented wall score 1, mud wall score 0)
- (d) Type of toilet (Water closet and owned pit toilet score 1, Bush and shared pit toilet score 0)
- (e) Type of cooking fuel (Gas score 1, Kerosene, wood and charcoal score 0)
- (f) Electricity source (Has electricity score 1, No electricity score 0)

2. Household or consumer durables

- (a) Television
- (b) Radio
- (c) Refrigerator
- (d) Watch
- (e) Cable TV
- (f) Generating set
- (g) Air conditioner
- (h) Electric iron
- (i) Computer
- (j) Fan
- (k) Mobile telephone

Where ownership score 1 and non-ownership score 0

3. Other Physical assets

- (a) Canoe
- (b) Boat with motor
- (c) Animal drawn cart
- (d) Bicycle
- (e) Motorcycle
- (f) Car / truck
- (g) House

Where ownership score 1 and non- ownership score 0

4. Human capital (Education of the household head)

Completed secondary school education score 1

Below secondary school education score 0

The standard deviation, mean values of the explanatory variables and their Eigen vectors were used in calculating the wealth indices for each variable in each household. The wealth indices for each variable per household was then summed together to obtain the household wealth index. The already calculated wealth index for each household were arranged in descending order and then sorted by their wealth index into quintiles. The bottom 20% were categorized as the poorest group, the next 20% categorized as the poorer category, the middle 20 % as the middle group, the next 20% as the richer group and the top 20 % as the richest group. This categories have also been used by Filmer and Pritchett (2001) and Sahn and Stifel (2003).

Ordered Probit Model

The ordered probit model was used to assess the determinants of wealth status in the study area. The univariate probit model differs from the ordered probit model in that the depended variable will no longer be a dummy variable but an ordered one taking the values of 0,1 2 3 and 4 according to the level of wealth status that the household falls into.

The level of wealth status of the sample household I (Y_i^*) is the unobserved or latent variable referred to as the ordered categories. Y_i^* is expressed in equation (2)

$$Y_i^* = \beta_0 + \sum \beta_j X_{ji} + U_i \dots\dots\dots(2)$$

Here, according to Greene, (2002) X_{ji} are the explanatory variables; u_i are the residuals or error term and the β_j are parameters to be estimated. It is assumed that the u_i is normally distributed across observations. In the model in equation (2) the dependent variable Y represents the wealth status in five categories. These categories are as follows;

- 0 = Poorest category (First 20% in descending order)
- 1 = Poorer category (Second 20% in descending order)
- 2 = Middle category (Third 20% in descending order)
- 3 = Richer category (Fourth 20% in descending order)
- 4 = Richest category (Fifth 20% in descending order)

The explanatory variables included in this model are;

X₁ = Age of household head (in years)

X₂ = Sex of household head (Male = 0, Female = 1)

X₃ = Type of place of residence (Urban = 1, Rural =0)

X₄ = Religion (Christianity = 1, Islam = 0)

X₅ = Literacy (Able to read = 1, Cannot read at all)

X₆ = No of years of education

X₇ = No of dependants

Results and Discussion.

Table 2 reveals the socio-economic characteristics of the respondents in the study area. In terms of location or region where respondents belong, about 32.9% of the respondents belonged to the North West region of Nigeria while only 5.9% belong to the South Eastern region. Furthermore, about 67.4% of the respondents belong to the rural households while only 32.6% of the respondents fell into urban households. Young people within the age of 30-50 years' form majority of household heads in the study area.

Majority of the household heads were male forming about 98.4 % while only 1.6% of the households were female headed. In terms of literacy, more than half of the respondents (55.9%) were illiterates while only 36% could read whole sentences. In terms of religion, 59.27% of the respondents practiced Islam, 38.88% were Christians while only 1.85% were traditionalists. The results showing their distribution in terms of educational level revealed that 45.5% of the respondents had no formal education, 20.4% had primary school education while only 7.5% had tertiary education.

Table 2: Socio- Economic Characteristics of Respondents in the Study Area.

Variables	Frequency	Percentage	Mean
1. Region			
North Central	1412	16.3	
North East	1719	19.9	
North West	2851	32.9	
South East	515	5.9	
South South	1043	12.0	
South West	1118	12.9	
2. Place of Residence			
Urban	2821	32.6	
Rural	5837	67.4	
3. Age of Household Head			
Less than 30	2040	23.56	
31 – 40	3599	41.57	
41 – 50	2756	31.83	38 years
51 – 60	89	1.03	
61 – 70	88	1.02	
71 – 80	56	0.65	
81 – 90	28	0.32	
Above 91	02	0.02	
4. Sex of household head			
Male	8517	98.4	
Female	141	1.6	
5. Literacy			
Cannot read at all	4843	55.9	
Able to read parts of sentence	620	7.2	
Can read local languages only	23	0.3	
Able to read whole sentences	3121	36.0	
Blind / Visually impaired	51	0.6	
6. Religion			

Christianity	3366	38.88
Islam	5132	59.27
Traditionalist	160	1.85
7. Educational level		
No Education	3942	45.5
Primary	1767	20.4
Secondary	2301	26.6
Tertiary	648	7.5

Source; Computed from NDHS, 2013 data

On table 3, Eigen values ranked in decreasing order which corresponds to values of principal components are shown. The Eigen values are variances of the corresponding principal components. The proportion of variance explained by each component is also presented on table 3. The first principal component is the linear index of variables with the largest amount of information common to all the variables (Baschieri and Falkingham, 2004). In this study, the first component (Y_1) has the largest Eigen value ($\lambda = 10.002$) and explains 38.47% of the variance of the variables. The second component (Y_2) has the Eigen value of 3.952 and explains 15.2 % of the variance of the asset while the third component explains 7.867% of the variance. This carries on till the (Y_{25}) the twenty fifth component.

Table 3: Total variance explained by each component

Component	Eigen value (λ)	% proportion of variance explained	Cumulative Percentage
1	10.002	38.467	38.47
2	3.952	15.199	53.67
3	2.045	7.867	61.53
4	1.052	4.045	65.58
5	0.998	3.838	69.42
6	0.977	3.756	73.17
7	0.662	2.547	75.72
8	0.601	2.313	78.03
9	0.543	2.089	80.12
10	0.483	1.857	81.98
11	0.450	1.729	83.71
12	0.445	1.713	85.42
13	0.413	1.588	87.01
14	0.402	1.546	88.55
15	0.389	1.495	90.05
16	0.350	1.345	92.79
17	0.336	1.293	94.08
18	0.308	1.186	95.27
19	0.261	1.005	96.27
20	0.245	0.941	97.21
21	0.225	0.866	98.08
22	0.170	0.653	98.73
23	0.157	0.605	99.34
24	0.136	0.524	99.86
25	0.036	0.139	100.00

Source; Computed from NDHS, 2013 data

Table 4 presents the scoring factors, mean, and standard deviation values from the principal component analysis. The scoring factors are the particular contribution of each variable in determining household wealth. All these values are imputed in equation (1) for each variable to generate the household wealth index. The household wealth index was then arranged in descending order and divided into five categories known as quintiles to be able to ascertain the wealth status of the households in the sample.

Table 4: Scoring Factors from Principal Component Analysis of 25 variables.

Variable	Scoring Factor	Mean	Standard deviation
Highest Educational level	0.337	4.97	1.009
Type of Toilet	0.223	0.40	8.553
Electricity	0.723	0.50	0.676
Radio	0.684	0.73	0.624
Television	0.753	0.48	0.700
Refrigerator	0.764	0.22	0.659
Bicycle	0.496	0.28	0.860
Motorcycle	0.496	0.28	0.855
Car / Truck	0.647	0.16	0.783
Main floor material	0.529	24.60	12.707
Main wall material	0.569	23.34	10.922
Main roof material	0.565	26.99	9.163
Type of cooking fuel	0.568	7.77	6.377
House	0.008	0.41	0.900
Mobile telephone	0.71	0.81	0.620
Watch	0.612	0.69	0.809
Animal drawn cart	0.558	0.13	0.813
Boat with motor	0.603	0.08	0.785
Cable TV	0.711	0.16	0.682
Generating set	0.789	0.29	0.641
Air conditioner	0.772	0.06	0.544
Computer	0.745	0.08	0.589
Electric iron	0.811	0.34	0.662
Fan	0.806	0.44	0.691
Canoe	0.597	0.10	0.784

Source; Computed from NDHS, 2013 data

The results of the ordered probit model used to estimate the determinant of wealth status in the study area was presented on table 5. Five categories form the dependent variable and they are the poorest category, the poorer category, the middle category, the richer category and the richest category. The dependent variables are also ordered 0,1, 2, 3, and 4 while seven explanatory variables were considered in the model. Out of the seven explanatory variables in the ordered probit model, six variables were statistically significant at 1% and 5 %. The significant variables are age of household head, sex of household head, type of place of residence, literacy, no of years of education and number of dependents. The maximum likelihood ratio ($\chi^2 = 22987.265$; 0.000) shows that the model is statistically of good fit.

Table 5: Estimated Ordered Probit model showing the determinants of wealth status in the study area**Regression Parameters**

Explanatory variables	Coefficient	Standard Error	Significance
Age of household head	0.007***	0.003	0.013
Sex of household head	-0.401**	0.166	0.016
Type of place of residence	-2.277***	0.054	0.000
Religion	-0.002	0.003	0.490
Literacy	0.074***	0.026	0.004
No of years of education	1.388***	0.035	0.000
No of dependents	-0.037***	0.007	0.000

Source; Computed from NDHS, 2013 data

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

Number of Observations = 8658

/ cut 1-4.617 Pseudo R² = 0.611; Chi² (7) = 22987.265; Prob> Chi²=0.000
 /cut 2 -3.005
 /cut 3 -1.475
 /cut 4 0.500

The results of the ordered probit model on table 5 revealed that the of age of the household head was statistically significant at 1% and positive and this revealed that in terms of wealth status, older household heads are more likely to fall into the rich category. The result also revealed that the sex of the household head was significant at 5% and the coefficient was negative and this shows that being a female headed household increases the probability of falling into lower wealth status and this means that the male headed households have better wealth status. The type of place of residence was significant at 1% and the coefficient was negative, this revealed that household heads residing in urban areas are more likely to fall into the poorest category of wealth status while household heads residing in rural areas fall into the richer group. Literacy and the no of years of education were significant at 1% respectively. This means that household heads that are literate and have higher numbers of years of educational experience are more likely to be richer in terms of wealth status. The result also revealed that the number of dependents in a household was significant at 1% and negative and this shows that the higher the number of dependents in a household the more likely a household will fall into categories of poorer wealth status.

Conclusion and Recommendation

The study concludes that more than 67.4% of the respondents reside in the rural areas. Majority of the household heads are young and within their economic active years as the mean age of the household head was about 38years. Majority of the household heads are male and in terms of educational level about 45.5% of the respondents had no formal education.

The result of the principal component analysis revealed that the first component (Y₁) has the largest Eigen value ($\lambda = 10.002$) and explains 38.47% of the variance of the variables. The corresponding score factors to each of the variables declared in the first component Y₁ was used in computing the household wealth index.

The results of the ordered probit model revealing the determinants of wealth status revealed that significant variables determining wealth status in the study area are age of household head, sex of household head, type of place of residence, literacy, number of years of education and number of dependents within the household. The religion of the household head was not significant and this reveals that religion is not a determinant of wealth status in the study area.

This study therefore recommends that more interventions in terms of good quality education and other basic amenities should be provided for people residing in the rural areas as rural people form the lion share of respondents in the study area.

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