Income Poverty in Nigeria: Incidence, Gap, Severity and Correlates

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This paper examined the incidence, depth and severity of poverty, and poverty correlates in Bayelsa state using the FGT decomposable class of poverty measures and a logit regression model as analytical tools on the 2009-10 NLSS data. Results from the FGT model showed that about 25 percent of households are income poor. To escape poverty the averagely poor has to mobilize financial resources to be able to meet 14 percent of N22393.62 household per capita expenditure monthly and the core poor has to mobilize financial resources up to 9 percent more of N22393.62 household per capita expenditure monthly than that required for the averagely poor. Results from the logit regression showed that agriculture and household size increases the probability that a household will be poor while dwelling in the urban area, being headed by male, a naira increase in households per capita expenditure on education and per capita expenditure on health and a year's increase in the number of years spent schooling by household head reduces the probability that a household will be poor. However the major poverty correlates in Bayelsa state were found to be per capita expenditure on education, per capita expenditure on health, years of schooling and household size. It was therefore recommended that free, compulsory and quality education at least up to the basic level as being practiced in some states of the country, easily accessible and quality healthcare services be provided.

Key Words: Bayelsa state, correlates, gap, incidence, income poverty, severity

Introduction

The rising profile of poverty in Nigeria is assuming a worrisome dimension every passing day. According to Ojo (2008) Nigeria has at least half of its population living in abject poverty. In like manner the Federal Office of Statistics (1996) reported that poverty has been massive, pervasive, and engulfs a large proportion of the Nigerian society. It is in this same spirit that Abiola and Olaopa (2008) enunciated that the scourge of poverty in Nigeria is an incontrovertible fact, which results in hunger, ignorance, malnutrition, disease, unemployment, poor access to credit facilities, and low life expectancy as well as a general level of human hopelessness.

The Nigerian story presents a paradox. The country is rich, but the people are poor. As noted by Omotola (2008), Nigeria is richly endowed and the country's wealth potentials manifest in the forms of natural, geographical, and socioeconomic factors. With this condition, Nigeria should rank among the richest countries of the world that should have no business with extreme poverty. However, Okpe and Abu (2009) notably remarked that Nigeria has witnessed a monumental increase in the level of poverty. Furthermore, every measure of poverty ranks Nigeria at the bottom list of nations. The Human Development Index (HDI) of 0.423 ranks the country 142 out of 169 countries in 2010 with estimated GNI

per capita of $2156, life expectancy at birth of 48.4 years, Multidimensional Poverty Index (MPI) of 0.368 (UNDP, 2010).

Apart from the overwhelming evidence, which suggests that, the country belongs to the group of the lower-income countries (GNP per capita of $US269 at PPP in 2000), the incidence of poverty has continued to rise with each passing day. Thus, poverty incidence that was just 15 percent of the population in 1960 rose to 28.1% in 1980 and further to 43.6% in 1985. The incidence of poverty dropped minimally to 42% in 1992 only to rise to 67% in 1996, 74.2 in 2000 and 92.5% in 2010 (Garba, 2006; Okpe and Abu, 2009; Alayande and Alayande, 2004; NBS, 2010).

Garba (2006) remarked that the UN Human Poverty Index, in 1999, placed Nigeria among the 25 poorest nations in the world. According to UNDP (2010) report, the population in poverty is given as 68.7 million, as of 2004. This is a very tragic situation when one considers the fact that Nigeria has had over $300 billion in oil and gas revenues since independence (Awa, 1983). Awa further rumbles that up to 95 percent of this great wealth is controlled by about .01 percent of the population.

Poverty in Nigeria is said to be mainly a rural phenomenon with agriculture accounting for the highest incidence over the years. This study focused Bayelsa state. The situation in Bayelsa state is not quite different being predominantly a rural state in

which oil and gas exploration and exploitation activities has rendered the ecosystem less habitable for aquatic and terrestrial lives, and less useful for agricultural activities. The 2009-10 harmonized national living standard core welfare indicators survey puts poverty level in Bayelsa, a core state in the Niger Delta region of Nigeria and a seat of the national economy at 93.2% (NBS, 2010). This is an irony. The high and increasing levels of poverty in Nigeria and Bayelsa state in particular is truly a paradox "suffering in the midst of plenty" or call it resource curse.

In spite of this there is lack of well documented facts on the incidence of poverty in Bayelsa state over the years which, perhaps explains the dearth of empirical works on poverty with specific reference to Bayelsa state. This has also made it difficult for successive governments to embark on people oriented poverty alleviation programs, where they do the results have left little or nothing to desire.

For any poverty alleviation program to thrive, the questions to be answered are: (i) what proportion of the people are poor? (ii) How far are the poor from the poverty line? (iii) what is the gap between the average poor and the core poor and (iv) what are the determinants of poverty in the given society? Once these questions are answered correctly then one will be able to know who the poor are, where they live, and why they are poor. By examining the incidence, depth, severity, and correlates of poverty in Bayelsa state, this paper will provide answers to the above questions in the context of Bayelsa state, contribute to the existing body of knowledge and by implication fill a gap in the literature. This paper would also serve as a platform for people oriented policy for poverty alleviation in the state.

Poverty Concept and Measurement Issues

Unarguably, poverty is a multidimensional concept. Poverty encompasses different dimensions of deprivation that relate to human capabilities, including consumption and food security, health, education, rights, voice, security, dignity, and decent work. Whereas Rocha (1998) contended that the ample variety of poverty situation worldwide has led to an equally large number of essays in terms of definition, measurement, and policies, Maxwell (1999) observed that the complexity of measurement mirrors the complexity of definition. This complexity becomes more severe when participatory methods are used and people are required to define their own indicators of poverty. Hulme and Mosley (1996), therefore, explains that the definition of what is meant by 'poverty', how it might be explained, and who constitute 'the poor' are ferociously contested issues.

In the heat of the foregoing it is pertinent to point that at the heart of the debate about defining poverty stands the question of whether poverty is largely about material needs or whether it is about a much broader set of needs that permit well-being (Hulme & Mosley, 1996). The former position concentrates on the measurement of consumption, usually by using incomes as a proxy. The use of the income-poverty approach, or the poverty line, is strengthened by the fact that the majority of national governments and development agencies use the concept for their analyses of poverty and anti-poverty policies (Maxwell, 1999; Garba, 2006). But Oriola (2009) acknowledged that income is an inadequate measurement of welfare. This is because many forms of deprivation which very poor people experience are not captured by income-poverty measures.

In addition, research studies have shown that new layers of complexity were added in the 1980s. These include the incorporation of non-monetary aspects, such as powerlessness and isolation, vulnerability to a sudden dramatic decrease in consumption levels, ill-health and physical weakness, social inferiority, and humiliation. Such dimensions of poverty are significant in their own right and are also essential analytical components for the understanding of poverty (Maxwell, 1999; Hulme & Mosley, 1996).

Borrowing a leaf from the work of Rocha (1998), the general definition requires qualification regarding the concepts of absolute and relative poverty. While absolute poverty is theoretically associated to the vital minimum, the concept of relative poverty incorporates the concern with inequality or relative deprivation, where the bare minimum is socially guaranteed. Absolute poverty implies the inability to attain a minimum standard of living or poverty line. The World Bank (2000) defines absolute poverty as "a condition of life degraded by diseases, deprivation, and squalor." On the other hand, the essence of poverty, in relative term, is 'inequality'. This implies that poverty can also be described as relative deprivation (Bradshaw, 2006). Rocha (1998), however, notes that the persistence of chronic deprivation of basic needs nowadays makes absolute poverty the obvious priority in terms of definition, measurement, and political action from the international point of view.

Gore (2002) explains the concept of all-pervasive poverty. According to him, poverty is all-pervasive, where the majority of the population lives at or below income levels sufficient to meet their basic needs, and the available resources, even when equally distributed, are barely sufficient to meet the basic needs of the population. He reiterates further that pervasive poverty leads to environmental degradation. This is because people eat into the environmental capital stock to

survive. This, in turn, undermines the productivity of key assets on which the livelihood depends. It should also be noted that where extreme poverty is all-pervasive, state capacities are necessarily weak.

The Human Poverty Approach has been advanced by the United Nations Development Programme (UNDP) in its Human Development Reports. UNDP uses this conceptual framework to specify some basic human capabilities, which, if absent, could result to poverty. It includes the capability to "lead a long, healthy, creative life and to enjoy a decent standard of living, freedom, dignity, self-respect, and the respect of others (UNDP, 1997).

The measurement index method of conceptualizing poverty has also been recognized in the existing literature (Rocha, 1998; Maxwell, 1999; Ajakaiye, 2002). As observed by Omotola (2008), measuring poverty though a herculean task has become the rule. In terms of measurement, Rocha (1998) espouse that defining the relevant and operational poverty concepts and choosing the adequate measurement procedures is the result of a sensible and informed analysis of social reality.

Rocha (1998) states further that measuring poverty is a matter of identifying the essential causes of poverty in a given society. Is it widespread and affects the majority of the population or is it locally concentrated? Which are its roots? Is it a traditional syndrome or does it result from economic and technological changes? What are its main features? And who are the poor in terms of some essential characteristics? This overall information on poverty syndrome is the key element for adopting concepts and measurement instruments that seem the most appropriate to a specific context in terms of social reality and data gathering possibilities. In light of the foregoing this study is concentrates on income (unidimensional) poverty in Bayelsa state.

Literature Review

The issue of poverty is a serious one which has triggered renewed efforts by researchers in recent years to investigate into its causes. Akerele and Adewuyi (2011) were concerned with the incidence, depth and severity of poverty in Ekiti state of Nigeria, Onu and Abayomi (2009) concentrated on poverty among households living in Yola metropolis of Adamawa state of Nigeria, Obayelu and Awoyemi (2010) focused on poverty profile across geopolitical zones in rural Nigeria. Ogwumike and Akinnibosun (2013) were concerned with the determinants of poverty among farming households in Nigeria. Adeyonu, Oni, Okoruwa and Omonona (2012) studied poverty level among farmers in rural areas of Oyo

State of Nigeria. Onyemauwa, Ogbetere, Onyeagocha, Ehirim, Ben-Chendo, Nwosu, Nnadi, and Ukpongson (2013) were concerned with the effect of household poverty level on child labour participation among households in Isoko North Local Government Area of Delta State of Nigeria. The study of Fabiyi, Adetunji, and Ayanwola (2008) focused on the incidence and severity of poverty among small-scale farmers in five local government areas of Ogbomoso ADP Zone, Oyo State of Nigeria. Aigbokhan (2000) concentrated on the inequality and poverty profile in Nigeria during the period 1985-1997, Babatunde, Olorunsanya and Adejola (2008) looked at the determinants of farm household poverty in south-western Nigeria. Olawuyi and Adetunji (2013) focused on the incidence, severity and the determinants of household poverty in Ogbomoso Agricultural Zone of Oyo State, Nigeria. The various findings were quite revealing. For instance Akerele and Adewuyi (2011) using a multistage sampling approach and a total of 80 selected households showed that 38.30 percent of the households studied in Ekiti state of Nigeria were poor and would have to mobilize financial resources up to 41.80% of 1 US Dollar (N130) per day (for each household member) to be able to escape poverty. Further results showed that Female headed households in the study area were more vulnerable to income poverty with poverty incidence, depth and severity of 0.221 and 0.239, 0.402 and 0.191, respectively. Highest levels of poverty were found among household with 7-9 dependants with values 1.00, 0.715 and 0.511 for the incidence, depth and severity of poverty respectively. Educational levels of household head and spouse, gender of household head and dependency ratio are factors that exact significant influence on household welfare.

Onu and Abayomi (2009) analyzed poverty among households living in Yola metropolis of Adamawa state. Using 120 households as sample and the P- alpha measure of poverty (poverty head count index, P_o; poverty gap index, P_1; and poverty squared gap index, P_2) as analytical tool they revealed that 47.5 % of the respondents were below the poverty line while the poverty gap and severity were 0.20 and 0.1 respectively. Onu and Abayomi also showed that the incidence of poverty was high (100%) among illiterate household heads and poverty incidence, depth and severity were very high among older farmers of age 60 years and above.

Obayelu and Awoyemi (2010) investigated poverty profile across geopolitical zones in rural Nigeria. Using the 2003/2004 National Living Standard Survey data and the Foster, Greer and Thorbecke (FGT) poverty decomposition method they showed that majority of the poor (84%) live in the rural area. Northwest zone had the highest relative

contribution to incidence and depth of national rural poverty (29 and 30% respectively) while Southwest had the least relative contribution (4 and 3% respectively). Although North-central had the highest level of severity of rural poverty (P2 = 0.1454), North-west accounted for the highest relative contribution (30%) to national rural poverty.

Ogwumike and Akinnibosun (2013) were concerned with the determinants of poverty among farming households in Nigeria. Their study adopted the National Bureau of Statistics (NBS) measure of poverty and employed the logit regression model to estimate the effect of the socio-economic variables on poverty among farming households. Their results showed high incidence of poverty among farming households. Age, size of household, income, and number of farms were found to be the major determinants of poverty among farming households. They also showed that households in the North-east, North-central, South-east, and South-south geo-political zones had higher probability to be poor compared those in the North-west.

Adeyonu, et al (2012) examined poverty level among farmers in rural areas of Oyo State, Nigeria. A multi-stage sampling technique was used in collecting data from 180 farming households during the rainy and dry seasons. Their analysis revealed incidence of poverty of 32.7% and 40.6% during the rainy and dry seasons respectively. They also showed that poverty rate was higher among older farmers with low level of education who are subsistence farmers with large members and who had no access to food preparation and modern faming technology. Poverty indices are higher during dry season than rainy season.

Onyemauwa, et al (2013) assessed the effect of household poverty level on child labour participation among households in Isoko North Local Government Area of Delta State in the Niger Delta region of Nigeria. sixty (60) were selected randomly for the study. The Foster, Greer, Thorbecke (FGT) weighted poverty index was adopted. A poverty line of N4296.89 (US$27.20) was constructed and whereas the FGT results revealed a poverty incidence of 27%, households' poverty status and access to formal education where the main determinants of participation in child labour activities in the area.

Fabiyi, et al (2008) investigated the incidence and severity of poverty among small-scale farmers in five local government areas of Ogbomoso ADP Zone, Oyo State. One hundred and fifty (150) small-scale farmer households were sampled. Head count ratio, Poverty gap index. Sen Index, frequency counts was used to analyze, their results revealed that most small-scale farmers in the area were male, mature and responsible but with large household size and no formal education, their income level was also quite low. About 28% of the farmers were extremely poor, 20% were moderately poor and 52% are non- poor. Their study further revealed that severity of poverty was seriously felt in Ogbomoso North and South than in Orire LGA and the poverty gap was considerably large at Oriire LGA. The probability of being poor is reduced by increase in educational level, farming experience, number of farm enterprise, farm size and income level of the farmers. But the probability of being poor is increased by increase in household size.

Aigbokhan (2000) investigated the inequality and poverty profile in Nigeria during the period 1985-1997, using data for the 1985/86, 1992/93 and 1996/97 national household income surveys conducted by the Federal Office of Statistics. Households were classified by sector (urban/ rural), gender and region (geopolitical zones). The food energy intake (FEI) method, a variant of the absolute poverty approach, was used. The issue of polarization in income distribution was also examined. His study found evidence of worsening inequality and poverty in spite of economic growth. It was found also that male-headed households seem to have fared worse, and that poverty is more pronounced in rural areas and in the northern regions (zones). The poor policy stance during the period was found to have contributed significantly to increased poverty.

Babatunde, et al (2008) analyzed the determinants of farm household poverty in south-western Nigeria. The paper build on sample survey data collected in 2005. They found that 30% of the households were poor, subsisting below the average poverty line of 1985 naira (1US = 126 naira) per capita per month. The prevalence of poverty was found to be higher among older, small-scale farmers and those who do not belong to any farmers' cooperative group. Econometric analysis shows that households with smaller number, headed by male and educated head are better-off in terms of poverty than their counterparts with larger number, headed by female and uneducated head. Other factors which they found to be major determinants of poverty include land ownership, farm size and membership of farmers' cooperative society.

Etim and Ukoha (2010) investigated poverty among rural farming households using the Foster, Greer, Thorbecke (FGT) weighted poverty index. Farm-level survey data from 150 farming households were selected through the multi-stage sampling procedure. They found the monthly mean per adult equivalent household expenditure (MPAEHE) of the households to be N1,652.82 and poverty line of N1,101.88 was constructed. Their results of FGT decomposition revealed that poverty incidence for the study area is 0.57. Poverty incidence, depth and severity increases with increase in age of household

heads. Poverty incidence is highest (0.69) and lowest (0.31) when households are headed by persons within the age of 61–80 and 21–40 years, respectively. They further revealed that poverty incidence and severity increase with increase in size of household members. This ranged between 0.28, 0.51, 0.72 and 0.06, 0.28, 0.51 for households with 1-5 and 11-15 members, respectively.

Olawuyi and Adetunji (2013) analyzed the incidence, severity and the determinants of household poverty in Ogbomoso Agricultural Zone of Oyo State, Nigeria. One hundred and twenty (120) households were selected through a multistage sampling technique. They found that poverty rises with the increase in household size while it reduces with increase in level of education, farm size and participation in non-farm jobs as alternative sources of livelihood (livelihood diversification). Gender, household size, years spent in school, farm size and non-farm jobs were found to be important and significant factors determining poverty in the study area.

From the literature reviewed it is obvious that an ample of studies have been carried out in Nigeria on income poverty but with no specific concern of Bayelsa state. This paper will therefore contribute to the debate of the determinants (correlates) of poverty and fill an existing lacuna in the literature by analyzing the incidence, gap and severity of poverty, and its correlates in Bayelsa state.

Methodology

Area of Study and Data

The study was carried out in Bayelsa state in the Niger Delta region of Nigeria. Bayelsa State was carved out of Rivers State in 1996. It is one of the six states that make up Nigeria's South-South geopolitical zone. It has interstate boundaries with Rivers State to the west and northwest and Delta State to the east and Southeast. The Gulf of Guinea lies to its south. The State covers an area of 9,415.8 square kilometres. It lies at latitude 4°45' north and longitude 6°05' east. It has a population of 1,704,515 (2006 census figures) with a population density of 158 people per square kilometre. It accounts for 1.2% of Nigeria's total population.
Bayelsa State is predominantly tropical rainforest and mangrove swamps. Until the environmental degradation and disturbance of the ecosystem through oil exploration and exploitation activities, fishing has been a major economic activity. Agriculture is important; yams, cassava, plantains, oil palms and bananas are the main crops grown. The state's inhabitants also participate in palm oil milling, lumbering, palm wine tapping, local gin making, trading, carving and weaving.

The most important mineral in Bayelsa State is petroleum, which contributes about 40 percent of Nigeria's oil and gas production. Other minerals include natural gas, clay and industrial sand. Oloibiri where oil was first found in commercial quantity in Nigeria is located in Bayelsa state. Although the state host major oil multinationals such as Shell Petroleum Development Company (SPDC), AGIP oil, Cheveron, etc., government is the major employer of labour.
Data used in this study were collected from the 2009-10 National Living Standard Survey (NLSS) conducted by the National Bureau of Statistics (NBS). The frame for the study was the demarcated Enumeration Area (EA) maps produced by National Population Commission for the 2006 Housing and Population Census. A multi-stage sampling technique was adopted in the survey. This study selected 524 representative households-the original number of households surveyed in Bayelsa state, and data from the 524 households' were used for analysis in this study (ZODML, 2013).

Model Specification

Poverty Incidence, Gap and Severity

The poverty measure that was used in this analysis is the class of decomposable poverty measures by Foster, Greer and Thorbecke (FGT). They are widely used because they are consistent and additively decomposable (Foster *et al*., 1984). The FGT index is given by

$$P_\alpha = \frac{1}{N} \sum_{i=1}^{q} \left[\frac{Z - Y_i}{Z} \right]^\alpha \qquad . \qquad . \qquad . \qquad (1)$$

Where; Z is the poverty line defined as 2/3 of the Mean Per Capita Household Expenditure (MPCHHE), Yi is the value of poverty indicator/welfare index per capita in this case per capita expenditure in increasing order for all households; q is the number of poor people in the population of size N, and α is the poverty aversion parameter that takes values of zero, one or two.
Income poverty line is constructed as 2/3 of mean per capita household total expenditure when α=0, P_α measures the proportion of people in the population whose per capita expenditure on food and non-food items fall below the poverty line (poverty incidence).
when α=1, P_α measures the depth of poverty -how deep below the poverty line is the averagely poor (poverty gap).
 when α=2, P_α measures how farther the core poor are from the poverty line compared to the averagely poor (the severity of poverty)

Poverty Correlates

A logit model was employed to estimate the probability that a household is income poor if its per capita consumption expenditure is below the constructed poverty line given her socioeconomic characteristics.

$$ln\, L(Yi) = \beta' X + u_i \quad . \quad . \quad . \quad (2)$$

Equation (2) is a log-likelihood function showing the log-likelihood that a household is poor given its socioeconomic characteristics X, where:

Yi =1 if per capita expenditure < Z and Yi = 0 otherwise.

β' = a vector of parameters to be estimated

X = a vector of explanatory variables (poverty correlates) comprising of male, sector (rural and urban), age, minimum years of schooling, agric, household size, household expenditure on health and household expenditure on education. It is important to note the following: (1) male is a gender dummy variable that takes the value of 1 if household is headed by male and 0 otherwise; (ii) sector is a dummy variable that takes the value of 1 if household dwells in the urban area and 0 otherwise; and (iii) agric also is a dummy variable used to represent the occupation of household heads and takes the value 1 if the household head major occupation is in the agricultural sector and 0 otherwise.

u_i = error term

Results

Poverty Incidence, Gap and Severity

Table 1: Incidence of Poverty

Classification of Poverty	Frequency	Percentage	Cumulative Frequency
Income non-poor	391	74.62	74.62
Income poor	133	25.38	100
Total	524	100	

Constructed poverty line is N22393.62 per capita household expenditure
Poverty Incidence, $P_0 = 1/524\,(133)^0 = 0.2538$
Poverty Gap (depth), $P_1 = 74.72379/524 = 0.14260266$
Poverty Severity, $P_2 = 45.13015/524 = 0.08612625$

Poverty Correlates

Table 2: Logit Regression of Poverty Correlates

Incompov	Coefficient	Odds Ratio	Standard error	Z	p>|z|
Agric	0.1042	1.1099	0.2732	0.38	0.703
Urban	-0.4011	0.6695	0.3813	-1.05	0.293
Male	-0.1329	0.8756	0.3872	-0.34	0.731
pcexpedu	-0.0003	0.9997	0.0001	-2.66	0.008
pcexphealth	-0.0004	0.9996	0.0001	-4.71	0.000
yrssch	-0.0894	0.9145	0.2185	-4.09	0.000
hholdsize	0.3650	1.4406	0.0468	7.79	0.000
constant	-1.3560		0.4870	-2.78	0.005
Number of Observations	524				
Log likelihood	-228.6771				
LR $\chi^2(7)$	166.46				
Prob> χ^2	0.0000				
Pseudo R^2	0.2668				

Note: 11 Failures and 0 successes are completely determined; Source: Author's Computation

Table 3: Marginal Effect after Logit

Variable	dy/dx	Standard error	z	p>|z|	X
Agric	0.0081	0.0212	0.38	0.702	0.6069
Urban	-0.0362	0.0402	-0.90	-0.115	0.9065
Male	-0.0101	0.0284	-0.36	0.722	0.1431
pcexpedu	-0.00002	0.00001	-2.52	0.012	1236.25
pcexphealth	-0.00003	0.00000	-8.53	0.000	3985.95
yrssch	-0.00704	0.00238	-2.96	0.003	6.6355
hholdsize	0.02876	0.00698	4.12	0.000	4.8817

y=pr(incompov) = 08621267

Note: (*) dy/dx is for discrete change of dummy variable from 0 to 1

Discussion

Results from the FGT model showed poverty incidence to be 0.2538, poverty gap to be 0.1426 and poverty severity to be 0.0861. This results showed that about 25 percent of respondents are income poor, the averagely poor have 14 percent deprivation of income (or are 14 percent below the poverty line) and the core poor are about 9 percent worse of compare to the averagely poor. This implies that to escape poverty the averagely poor has to mobilize financial resources up to 14 percent of N22393.62 household expenditure per month for each household member and the core poor has to mobilize financial resources of 9 percent more of N22393.62 household expenditure per month for each household member than is required for the averagely poor.

In the logit regression showed on table 4.2 the coefficients of Agric and hholdsize showed positive signs as expected while those of Urban, Male, pcexpedu, pcexphealth and yrssch all showed negative signs as expected. These results indicate that whereas households whose head are in the agricultural sector and households with larger family sizes are more likely to be poor, households in the urban sector, households headed by male, households with larger per capita expenditure on education, households with larger per capita expenditure on health and households whose heads have spend more years schooling are less likely to be poor. To be specific we consider the odds ratios of the logit estimates which showed that households in the agricultural sector are 1.1 times more likely to be poor compare to those in other sectors and households with larger family sizes are about 1.4 times more likely to be poor compare to those with smaller family sizes. The odds ratios also revealed that households in the urban areas are 0.67 times less likely to be poor, households headed my men are 0.88 times less likely to be poor, households with larger per capita expenditure on education are 0.9997 times less likely to be poor, also households with larger per capita expenditure on health are 0.9996 times less likely to be poor and finally, households whose heads have spend more years schooling are 0.91 times less likely to be poor. Further analysis could be drawn from the marginal effect after logit regression in table 4.3, this has some important revelations. The results indicate that if a household moves from other occupations to agriculture the probability that the household will become poor increases by 0.8 percent provided such a household had 60 percent of its economic activities in the agricultural sector. Also, if a household size increases by one more person, provided the household already had 5 persons in the family the probability that such a household will become poor increases by about 3 percent. On the

other hand if a household migrates from rural to urban area the probability that the household will be poor reduces by about 4 percent, also if a household leadership moves from female headed to male headed the probability that the household will be poor reduces by 1 percent. Furthermore, a naira increase in households per capita expenditure on education and per capita expenditure on health reduces the probability that the household will be poor by 0.002 and 0.003 percents respectively provided the household per capita expenditure on education and health had reached a threshold of N1,236.25 and N3985.95 respectively and finally a year increase in the number of years spent schooling by household heads reduces the probability that a household will be poor provided the household head had spent a minimum of about seven (7) years schooling. However Agric, Urban and male were statistically not significant implying that income poverty in Bayelsa state does not take occupational, gender nor sector (rural-urban) dimensions and the major poverty correlates in Bayelsa state are per capita expenditure on education, per capita expenditure on health, years of schooling and household size. The robustness check using the likelihood ratio (LR) test revealed that the model is robust as the included variables were together statistically significant, this is indicated by a 0.000 probability of obtaining a LR value of 166.46.

Conclusion

This study has so far examined poverty in Bayelsa state, its incidence, gap, severity and correlates. Based on our results we conclude that income poverty in Bayelsa state is not a more serious issue if we consider the fact that only about 25 percent of households are income poor however, this small number could cause a great deal of trouble to society and should be considered. Remember, "poverty anywhere is problem everywhere". We also showed that the averagely poor have to mobilize financial resources up to 14 percent of N22393.62 household per capita expenditure per month to escape poverty while the core poor have to mobilize additional 9 percent of N22393.62 household per capita expenditure financial resources to achieve the same feat. We further showed that income poverty in Bayelsa state is neither gender, occupational nor rural-urban issue but is mostly determined by the household size, years of schooling, per capita expenditure on health and per capita expenditure on education.

Recommendations

Base on the foregoing we recommend that poverty reduction efforts in Bayelsa state should aim at

encouraging free, compulsory and quality education at least up to the basic level, easily accessible and quality healthcare services, a population policy that would encourage a married couple to have at most three children or at most a household size of 5.

References

Abiola, A. G. and Olaopa, O. R. (2008). Economic Development And Democratic Sustenance in Nigeria. In E. O. Ojo (ed), *Challenges of Sustainable Democracy in Nigeria* (pp. 25-34). Ibadan: John Archers Publishers Limited.

Adeyonu, A. G., Oni, O. A., Okoruwa, V. O. and Omonona, B. T. (2012) "Seasonality in Poverty Level of Rural Farming Households in Oyo State Nigeria" *ARPN Journal of Agricultural and Biological Science,* 7(8):570-575, August

Aigbokhan, B. E. (2000) "Poverty, growth and inequality in Nigeria: A case study" AERC Research Paper 102 *African Economic Research Consortium,* Nairobi, October

Ajakaiye, O. (2002). Overview of the Current Poverty Eradication Programme in Nigeria. In A. Jega & H. Wakili (Eds.), *The Poverty Eradication Programmes in Nigeria: Problems and Prospects,* (pp 8-33). CDRT, Kano.

Akerele, D. and Adewuyi, S. A. (2011) "Analysis of Poverty Profiles and Socioeconomic Determinants of Welfare among Urban Households of Ekiti State, Nigeria" *Current Research Journal of Social Sciences* 3(1): 1-7, January,

Alayande B. and Alayande O. (2004) "A quantitative and qualitative assessment of vulnerability to poverty in Nigeria," A paper presented at the CSAE conference on *Poverty Reduction, Growth and Human Development in Africa,* March.

Awa, E. O. (1983). Teaching political Science in African Universities: A Problem Solving Approach. In Y.Barongo (ed), *Political Science in Africa (pp. 27-37).* United Kingdom: Zed Press Plc.

Babatunde, R.O., Olorunsanya, E.O. and Adejola, A.D. (2008) "Assessment of Rural Household Poverty: Evidence from South-western Nigeria" *American-Eurasian J. Agric. & Environ. Sci.,* 3 (6): 900-905

Bradshaw, T.K. (2006) Theories of Poverty and Anti-Poverty Programs in Community Development, RPRC Working Paper No. 05-06.

Etim, N. A. and Ukoha, O. O. (2010) "Analysis of poverty profile of rural households: evidence from South-South Nigeria" *Journal of Agriculture & Social Sciences,* 6: 48–52

Fabiyi, Y. L., Adetunji, M. O. and Ayanwola, J. T. (2008) "The Incidence and Severity of Poverty among Small-scale Farmers in Ogbomoso Area of Oyo State" *International Journal of Agricultural Economics & Rural Development* - 1 (2), 108-114

Federal Office of Statistics. 1999. Poverty Profile for Nigeria 1986-1999, FOS Office, Lagos, Nigeria.

Federal Office of Statistics (1996). *The Social and Economic profile of Nigeria.* Abuja: Federal Office of Statistics.

Foster J., Greer J. and Thorbecke E. 1984. A Class of Decomposable Poverty Measures. Econometrica. 52(1).

Garba, A. (2006). Alleviating Poverty in Northern Nigeria. A paper presented at the annual convention of Zumunta Association, Minneapolis, MN, USA. July 28-29.

Gore, C. (2002). *Globalization, the International Poverty Trap and Chronic Poverty in the Least Developed Countries.* CPRC Working Paper No. 30.

Hulme, D. & Mosley, P. (1996) *Finance Against Poverty.* Volume 1. London: Routledge.

Maxwell, S. (1999). The Meaning and Measurement of Poverty. Retrieved from: http://www.odi.org.uk/resources/download/2227.pdf.

National Bureau of Statistics (2010). National Living Standard Survey.

Obayelu, O. A. and Awoyemi, T. T. (2010) " Spatial dimension of poverty in rural Nigeria" *Journal of Development and Agricultural Economics* Vol. 2(6): 231-244, June

Ogwumike, F. O. and Akinnibosun, M. K. (2013) "Determinants of Poverty among Farming Households in Nigeria" *Mediterranean Journal of Social Sciences,* 4(2) 365-373, May

Ojo, E. O. (2008) Imperatives of Sustaining Democratic Values. In Ojo, E. O (ed), *Challenges of Sustainable Democracy in Nigeria* (pp. 3-24). Ibadan: John Archers Publishers Limited.

Okpe, I. J. and Abu, G. A. (2009) "Foreign Private Investment and Poverty Reduction in Nigeria (1975-2003)". *J. Soc. Sci.*, 19(3): 205-211.

Olawuyi, S. O. and Adetunji, M. O. (2013) "Assessment of Rural Households Poverty in Nigeria: Evidence from Ogbomoso Agricultural Zone of Oyo State, Nigeria" *Journal of Scientific Research & Reports* 2(1): 35-45

Omonona, B. T. (2001) "The determinants of poverty among farming households in Kogi State, Nigeria," Unpublished PhD Thesis, University of Ibadan, Ibadan, Nigeria.

Omotola, J.S. (2008). Combating Poverty for Sustainable Human Development in Nigeria: The Continuing Struggle. *Journal of Poverty,* 12(4), 496-517.

Onu, J.I. and Abayomi, Z. (2009) "An Analysis of Poverty among Households in Yola Metropolis of Adamawa State, Nigeria" *Journal of Social Science,* 20(1): 43-48

Onyemauwa, C. S., Ogbetere, M. O., Onyeagocha, S. U. O., Ehirim, N. C., Ben-Chendo, N. G., Nwosu, F. O., Nnadi, F. N. and Ukpongson, M. A (2013) "Household Poverty Status and Child Labour Participation in Isoko North of Delta State, South-South Nigeria" *International Journal of Agricultural and Food Science*, Vol. 3(3): 80-85 May

Oriola, E.O. (2009). A Framework for Food Security and Poverty Reduction in Nigeria. *European Journal of Social Sciences,* 8(1), 132-139.

Oyekale A. and Oyekale T. (2007), "An assessment of income shocks and expected poverty dynamics in Nigeria" Department of Agricultural Economics, University of Ibadan, Nigeria. http://www.africametrics.org/documents/conference 09/papers/Oyekale_Oyekale.pdf.

Rocha, S. (1998). "On Statistical Mapping of Poverty: Social Reality, Concepts and Measurement". Background Paper Prepared for the Expert Group Meeting on Poverty statistics, Santiago, Chile, May 9.

UNDP (1997). *Human Development Report 1997.* New York: Oxford University Press.

UNDP (2010) *Human Development Report Nigeria 2008-2009. Achieving Growth with Equity.* United Nations Development Programme.

Appendix

```
. logit incompov agricult urban male pcexedu pcexh yrsch hhsize

Iteration 0:   log likelihood = -311.90871
Iteration 1:   log likelihood = -255.10476
Iteration 2:   log likelihood = -237.52324
Iteration 3:   log likelihood = -229.46695
Iteration 4:   log likelihood = -228.68111
Iteration 5:   log likelihood = -228.67709
Iteration 6:   log likelihood = -228.67709
```

Logistic regression

Log likelihood = -228.67709

		Number of obs	=	524
		LR chi2(7)	=	166.46
		Prob > chi2	=	0.0000
		Pseudo R2	=	0.2668

incompov	Coef.	Std. Err.	z	P>|z|	[95% Conf. Interval]	
agricult	.1042499	.2731895	0.38	0.703	-.4311916	.6396914
urban	-.4011597	.3813183	-1.05	0.293	-1.14853	.3462105
male	-.1329011	.3871682	-0.34	0.731	-.8917367	.6259346
pcexedu	-.0002706	.0001017	-2.66	0.008	-.00047	-.0000712
pcexh	-.0003864	.000082	-4.71	0.000	-.0005471	-.0002256
yrsch	-.0893503	.0218536	-4.09	0.000	-.1321825	-.0465182
hhsize	.3650488	.0468357	7.79	0.000	.2732525	.4568452
_cons	-1.355993	.4869548	-2.78	0.005	-2.310407	-.4015786

Note: 11 failures and 0 successes completely determined.

```
. logit, or
```

Logistic regression

Log likelihood = -228.67709

		Number of obs	=	524
		LR chi2(7)	=	166.46
		Prob > chi2	=	0.0000
		Pseudo R2	=	0.2668

incompov	Odds Ratio	Std. Err.	z	P>|z|	[95% Conf. Interval]	
agricult	1.109878	.3032069	0.38	0.703	.6497344	1.895896
urban	.6695432	.255309	-1.05	0.293	.3171026	1.4137
male	.8755517	.3389858	-0.34	0.731	.4099432	1.869993
pcexedu	.9997294	.0001017	-2.66	0.008	.9995301	.9999288
pcexh	.9996137	.000082	-4.71	0.000	.999453	.9997744
yrsch	.9145251	.0199856	-4.09	0.000	.8761811	.9545472
hhsize	1.440584	.0674708	7.79	0.000	1.314232	1.579084

Note: 11 failures and 0 successes completely determined.

```
. mfx
```

Marginal effects after logit
      y = Pr(incompov) (predict)
         = .08621267

variable	dy/dx	Std. Err.	z	P>|z|	[95% C.I.]		X
agricult*	.0081393	.02124	0.38	0.702	-.033497	.049775	.60687
urban*	-.0362013	.04021	-0.90	0.368	-.11501	.042608	.906489
male*	-.0100692	.02835	-0.36	0.722	-.065637	.045499	.14313
pcexedu	-.0000213	.00001	-2.52	0.012	-.000038	-4.7e-06	1236.25
pcexh	-.0000304	.00000	-8.53	0.000	-.000037	-.000023	3985.95
yrsch	-.007039	.00238	-2.96	0.003	-.011701	-.002377	6.6355
hhsize	.0287586	.00698	4.12	0.000	.015081	.042436	4.88168

(*) dy/dx is for discrete change of dummy variable from 0 to 1