

Oil Production and the Poverty Situation in the Niger Delta Region of Nigeria: A Case of Selected Communities

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Abstract: When the oil producing communities relinquished their land for oil production, they did so expecting direct benefits, which may be summarized as welfare improvement. But unfortunately, rather than celebrate the arrival of these benefits, there were complaints from the communities about damage to the environment, which impacted their means of livelihood negatively. It is therefore to investigate these claims that this study examines the effects of oil production on household income generation and well-being in selected oil producing communities in the Niger Delta Region of Nigeria. To accomplish this task, survey approach was employed on account of which the three (3) participating States; four (4) Local Government Areas; and five (5) communities were selected with the aid of purposive sampling technique. Also, the six hundred and fifty-eight (658) households, which constituted the sampled objects of study were drawn with the employment of random sampling technique. The generated data was therefore analyzed with the aid of descriptive and logistic regression tools. The result of the analysis revealed that oil exploration and exploitation activities, truly impacted negatively on the income capacity and the well-being of households in the oil-bearing communities. Hence, something significant needs to be done in order to reverse the trend. The study recommends that policies that would ensure immediate clean-up of pollution sites, and adequate compensation plan both in the case of pollution and land take-over be put in place. These would ensure socially-optimal operations by the firms that would guarantee the protection of community dwellers who have always been at the receiving end of the negative effect of oil production.

Keywords: Oil, Poverty, Production, Environment, Living Condition, Life Sustainability

1. Introduction

Since oil production commenced in 1958, Nigeria, over the years has risen from the pre-1956 state of non-oil producing nation to the highest-ranking oil producing nation in Africa and the thirteenth oil producing nation in the world (see Tables 1 and 2) with the production of 2.525 million barrels per day. Prior to the discovery and exploitation of oil, agriculture was the main contributor to the country's Gross Domestic Product (GDP). With the bullish entry of oil into the international market, coupled with increasing demand, the price of oil experienced unprecedented rise. Oil earnings now overtook that of agriculture, forcing government to divert its investment attention to oil. This was how oil gradually took over from agriculture as the major contributor to government revenue earning. However, the experience of the Niger Delta region does not seem to resemble the story of

Nigeria given the fact that the wealth from oil is yet to have significant effect on the well-being of the people. In fact, abject poverty seems to be the identity of the region. It is revealed that the incidence of poverty has remained high for the Niger Delta region despite its oil wealth.

The findings by the World Bank (2000) that out of the world's 6.0 billion people, 2.8 billion live on less than \$2 a day and 1.2 billion on less than \$1 a day strongly support the position that poverty is a global problem, hence the need for everybody to be involved in tackling it. But the poverty problem is more touching when a set of people living under the condition are perceived to be suffering in error (or suffering in the midst of plenty). This is generally the case of Nigeria and that of the Niger Delta Region, in particular, hence the need for this study. According to Thomas and Canagarajah, (2002), Nigeria had the largest export income (after South Africa) in 1994 thus showing the wealth of the

Nigerian Economy and its potential for effective alleviation of poverty. But Nigerian people in general and the Niger Delta people in particular have been complaining of deprivation and poverty.

This work posits to examine the effect of oil production on the poverty situation in Nigeria with special focus on selected oil producing communities in the Niger Delta region.

2. The Study Area

This study covered selected communities involved in the production of oil from the inception of oil discovery at Oloibiri in the present day Bayelsa State of Nigeria. As a result, core communities involved in oil production were examined irrespective of whether they still have oil or not. For instance, oil is no longer being produced in Oloibiri,

given the fact that the oil wells in the community dried up already. But the impact of oil production such as oil spill and acid rain are still being felt just like in many other non-oil producing communities in the region. Thus, knowing what became of such communities after producing oil for a reasonable period of time would go a long way in influencing the way forward in managing present and future resource-rich communities.

Following from this position, therefore, the study cover: Ibekwe Clan (made up of Ikot Akpan Atta, Ikot Ada Udo, Ata Udo Usung) in Ikot Abasi Local Government Area of Akwa Ibom State; Upenekang and Mkpanak in Ibeno Local Government Area of Akwa Ibom State; Oloibiri in Ogbia Local Government Area of Bayelsa State; and Kpean in Ken-Khana Kingdom of Khana Local Government Area of Rivers State (see Figure 1).

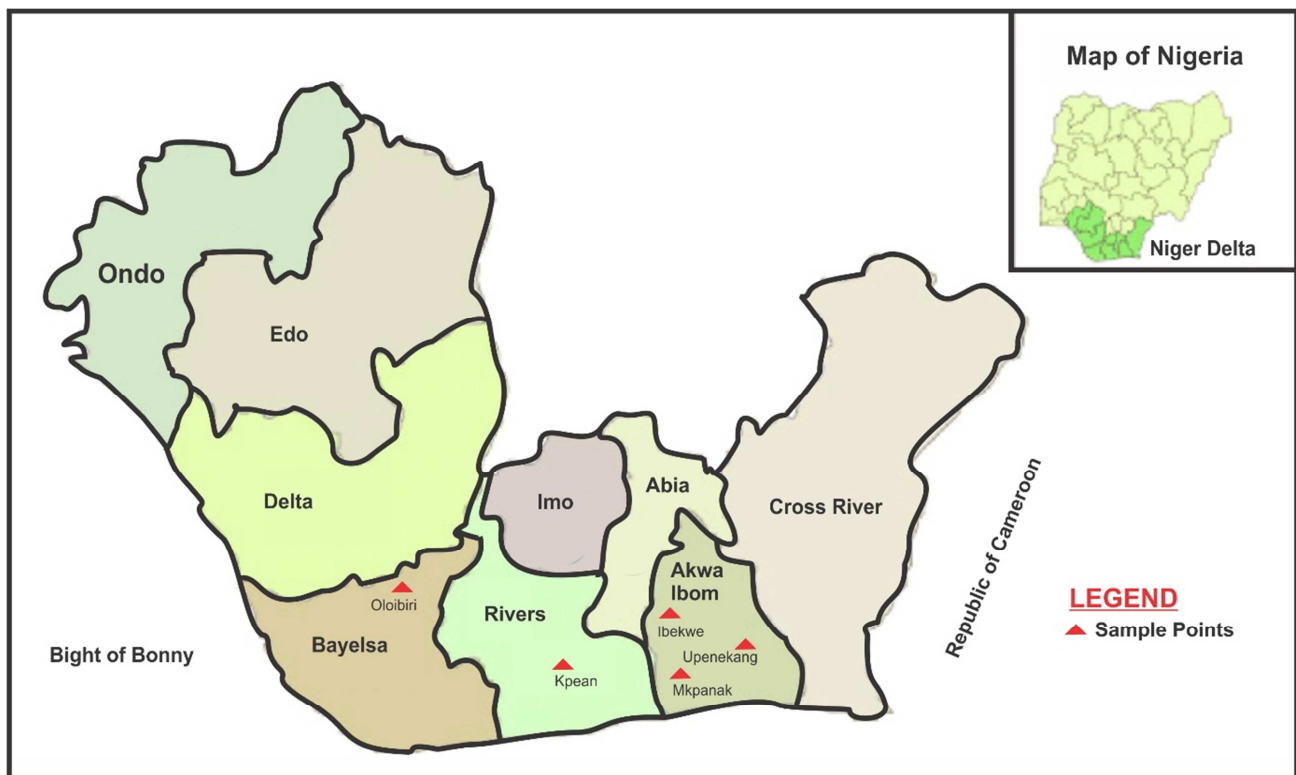


Figure 1. Map of Niger Delta region showing study area.

Table 1. Top ten (10) oil producing countries in Africa, 2015.

Country	Production (bpd)	Rank
Nigeria	2,525,000	1
Algeria	1,885,000	2
Angola	1,840,000	3
Libya	1,600,000	4
Egypt	680,500	5
Sudan	520,000	6
Equatorial Guinea	346,000	7
Republic of Congo	274,400	8
Gabon	241,700	9
South Africa	191,000	10

Source: African Ranking (2015), Top 10 Oil Producing Countries in Africa, 2015. www.africanranking.com.

Table 2. West African main oil producers.

Country	Global Rank, 2012 (Out of 103)	Production, 2000 (000 bpd)	Production, 2012 (000 bpd)	Proven Reserves, 2012 (Million Barrels)	Consumption, 2012 (000 bpd)
Nigeria	13	2169.35	2524.1	37200	269.9
Ghana	54	7.13	79.6	660	63.9
Cote d'Ivoire	62	12.37	38.6	250	23.6
Benin	Na	0.69	Na	8	18
Niger	Na	0	20	650*	5.7

*Reserve for Niger as per 2011 figure

Source: Kupper, C., and Vagh, M. (2014), "Cartographie du petrole en Afrique de l'Ouest," Groupe de Recherche de d'information sur la paix et la securite, Brussels, January, 2014).

3. Literature Review

Poverty is a condition that is unacceptable and so needs to be aggressively addressed for the purpose of improving the people's welfare. This was the view of the Asian Development Bank (1999) when it asserted that:

Poverty is an unacceptable human condition that can and must be eliminated by public policy and action. Poverty is a deprivation of minimum essential assets and opportunities to which every human being is entitled. Everyone should have access to basic education and primary health services. Poor households have the right to sustain themselves by their labour, and be reasonably rewarded, and be afforded some protection from external shocks.

The implication of this submission is that poverty is a menace that should be confronted by all. But given the fact that poverty is multi-dimensional and multi-faceted, the strategy adoptable in addressing it per time would depend upon the depth of understanding of its root causes. These causes are identifiable through the various poverty theories.

From the works of Bradshaw (2006), five theories of poverty were identified. They include: (i) individual deficiency theory, (ii) cultural belief system theory, (iii) economic, political, and social distortions or discrimination theory, (iv) Geographical disparity theory and (v) Cumulative and cyclical interdependency theory. Understanding these theories provides the basic information required in tackling the ensuing poverty.

(a) Individual Deficiency Theory

The origin of this theory, which views poverty as a result of the inability of man to meet his own basic needs, is traceable to the work of Maslow (1943) where he maintains that until the most basic level of needs are met; human beings would lack the motivation to move to higher level of needs. In essence, if an individual could work harder to meet the basic needs, he would possess the required drive to address the higher level of needs. But if an individual could not meet the basic needs he would remain at the same level.

With this submission, the theorists hold the view that individuals are responsible for their poverty situation. They claim that the poor individuals could have avoided the situation in which they are found if they had worked harder. This was the position of Asen (2002) when he opined that any individual can succeed by skills and hard work. Hence, it is believed that individuals fail because they do not try hard enough (Bettinger, 1977). Although it is possible to dismiss

the individual deficiency theory as an apology for social inequality (Fischer et al 1996) we can easily see how it is embraced in anti-poverty policy, which suggests that penalties and incentives can change behavior (Bradshaw, 2006). Addressing poverty, therefore, requires a focus on how people are able to put to use the natural endowment within and around them. This is what makes this relevant and important to this study. In actual fact, the poverty situation in oil producing communities may be traceable to their incapacitation due to the prevailing property right regime that may not allow them control over their own resources.

(b) Cultural Belief System Theory

Culture, which is a way of life of certain people, represents their beliefs, values and skills which are perpetuated over time. It is the system by which human beings perceive and understand the world in which they live (see Gertz, 1973). But the cultural theory of poverty, which portrays the creation and transmission of poverty over generations, is traceable to the work of Lewis (1966). According to Lewis (1969) "this culture emerged when populations that were socially and economically marginalized from a capitalist society developed patterns of behavior to deal with their low status. This behavior was characterized by low aspirations, political apathy, helplessness, disorganization, provincialism, and the disparagement of so-called middle-class values." He further argued that once this culture was in place, mechanisms for its perpetuation were immediately developed, changes in structural conditions notwithstanding (Ryan, 1976).

There have however been some varying levels of confusion on the relationship between culture and poverty. This confusion emanated from the work of Lewis, who himself happened to be among the pioneer scholars on the subject. As presented by Kartz (1989), Lewis's popularization of the culture of poverty concept tolled an intellectual death knell to the optimistic idealism of the mid-1960s that advocated poverty eradication through direct state intervention. So, for Lewis to support the advocates of state intervention as a panacea for poverty eradication negates the principles that culture of poverty upholds (see Lewis 1966b and 1967). But the confusion notwithstanding, there has been significant effort (mainly by cultural sociologists) at establishing the link between culture and poverty. These efforts have yielded some position on how cultural factors do affect and are affected by poverty. For instance, scholars like Snow and Benford (1992) and Harding (2005) viewed culture

as frames and how they influence the response to poverty. The frames are interpretive schema that simplify and condense the world out there by selectively punctuating and encoding objects, situations, events, experiences, and sequences of actions within one's present or past environment. Their influence on poverty is determined by how individuals frame their neighborhoods. For instance, Harding (focusing on how adolescents framed the idea of pregnancy) found out those adolescents in disadvantaged neighborhoods in Boston exhibit greater heterogeneity of frames than those in other neighborhoods. This is so because perception is a function of the group one belongs to.

In her presentation Swidler (1986) conceived culture as a repertoire (tool kit) of practices, beliefs, and attitudes from which strategies of action are constructed whenever the need arises. According to her, culture is a heterogeneous set of attributes rather than a single coherent system, thus allowing for cultural differentiation and contradictions within a group. Thus, following the attributes in each individual kit of tools, it is easy to understand how they respond to their aspirations. This may help to explain, for instance, why although the poor and the middle class may share common aspirations about education, their overall pattern of behavior in pursuing the goal differs. While the works of Wilson (1996), and Hays (2003) supported and extended the poverty tool kit idea, Lamont (1992) argues that the tool-kit perspective presents problems in the sense that it failed to explain why some certain repertoire choices are made, among other alternatives. But the criticism notwithstanding, Swidler's submission was able to deal with the issue of heterogeneity or contradiction, thus pushing the cause of poverty explanation further.

Consequently, the prevalence of resource crisis is a pointer to the fact that the people have developed the culture of non-acceptance of the status quo, hence the perpetuation of agitation over time for resource control. Where one hundred percent control of the resources may not be possible, they have agitated for a fair share of the resources in order to make life better for the people.

(c) Economic, Political, and Social Distortions Theory

The development of this theory is traceable to the work of Karl Marx and the 19th century social intellectuals as cited in the work of Bradshaw (2006). Unlike the earlier presented theories where individuals are considered to be the source of poverty, this one considers the economic, political and the social system to be responsible for poverty. Theorists here are of the opinion that it is the system that restricts or confines the people to having limited opportunities and resources and hence making it difficult for them to achieve required level of income for minimum well-being. This was the position that was summarized in Bradshaw (2006) when he submitted that

The 19th century social intellectuals developed a full attack on the individual theory of poverty by exploring how social and economic systems overrode and created individual poverty situations. For example, Marx showed how the economic system of capitalism created the "reserve army of the unemployed" as a conscientious strategy to keep wages low. Later Durkheim showed that even the most personal of

actions (suicide) was in fact mediated by social systems. Discrimination was separated from skill in one after another area, defining opportunity as socially mediated. Taken to an extreme, radical thinkers argued that the system was flawed and should be radically transformed.

As observed and submitted by the author, much of the literature on poverty suggests that the economic system is structured in such a way that poor people always lag behind regardless of how competent they may be.

From the presentations above, the problem of workers, which help in perpetuating poverty, can be viewed as wage problem. This was supported by Jencks (1996) when he affirmed the problem to be the inability of the minimum wages allowing families to be self-sufficient. It is further compounded by the inability of families to get better jobs since available jobs are limited (see Tobin 1994). From this perspective, therefore, poverty problem can be addressed by positively tuning the economy in such a way that better conditions of service and access to resource base would be available to enable workers/families to enjoy some level of comfort (at least minimum). The resource ownership/control problems in the Niger Delta could equally be viewed and addressed within this context.

(d) Geographical Disparities Theory

This theory is traceable to the works of Rostow (1960, and 1962) where he identified the five stages of growth and development. According to him, all countries are at different stages of development due to a number of factors such as:

- i. Natural resource endowment
- ii. High level of indebtedness
- iii. Corruption, and
- iv. Exploitation of poorer countries by More Developed Countries (MDCs), which makes it impossible for them to develop and thereby perpetuating their poverty

These factors deal with spatial characterization of poverty, that is, the spread of poverty across geographical planes such as rural poverty, urban poverty, and third world poverty, among others. The theory calls attention to the fact that people, institutions, and cultures in certain areas lack the objective resources needed to generate well-being and income, and that they lack the power to claim redistribution (Bradshaw, 2006). According to Morrill and Wohlenberg (1971) some of the factors responsible for spatial poverty could include disinvestment, proximity to natural resources, density, and diffusion of innovation. Also, Goldsmith and Blakely (1992), in their work on the link between development and poverty in urban contexts, argue that the joint processes of movement of households and jobs away from poor areas in central cities and rural regions creates a *separation of work, residence, economic, social and political life*. These processes are multiplied by racism and political indifference of the localities in which they flourish (see Bradshaw, 2006).

But efforts at explaining the intensity of poverty in certain areas have been on over time and a number of scholars have attempted to offer some explanation. However, it is important to note that the explanation is better done by utilizing input from other theories. Those theories that have been found

helpful therefore include: economic agglomeration theory; human ecology theory; and selective out-migration theory.

Economic agglomeration theory is used to explain the emergence of strong industrial clusters, which eventually draw resources away from poor areas, thereby making them poorer. This is explained by Bradshaw, King, and Wahlstrom (1998), and colligated in Bradshaw (2006) that

Agglomeration shows how propinquity of similar firms attracts supportive services and markets, which further attracts more firms. In reverse, the propinquity of poverty and the conditions leading to poverty or the consequences of poverty (crime and inadequate social services) generate more poverty, while competitive areas attract business clusters, drawing away from impoverished communities. Low housing prices in such locations may attract more poor persons, for example, leading to housing disinvestment by building owners. In a world in which the criteria for investment are "location, location, location," it is not unreasonable to track investment going to neighborhoods, communities and regions in which there is already substantial investment, while leaving less attractive areas.

Human ecology theorists hold that technological development would flourish faster in urban areas given the availability of infrastructural facilities, which aid the development of human resources (see Hansen, 1970; Rural Sociological Society Task Force on Persistent Poverty, 1990; and Lyson and Falk, 1992), thus explaining why the rural areas would remain poor while the urban areas are getting better.

On their own part, the selective out-migration theorists have opined that those who migrated from rural areas are the best materials in terms of education, skill, and widest world view. As such, the exit of these people only keeps the areas more impoverished, while improving the lots of the urban areas (Wilson, 1987; and Bradshaw and Muller, 2003).

These presentations are relevant in examining the situation in resource-rich communities, which may be suffering high level poverty despite the fact that they are naturally endowed with natural resources from which their nation derives her wealth.

(e) Cumulative and Cyclical Interdependencies Theory

This theory, which stems from the work of Myrdal (1957) on "interlocking, circular, interdependence within a process of cumulative causation", is more complex than the ones earlier discussed as it builds on components of each of the other theories. It is concerned with individuals and their communities as caught in a spiral of opportunity and problems, and that once problems dominate, other opportunities are shut-out, thereby creating cumulative set of problems that make any positive intervention almost impossible (Bradshaw, 2000). The cyclical nature is as a result of the fact that the individuals and the communities are mutually dependent in the sense that when the community is economically weak, the individuals that are members of the community are equally weak, and vice versa. In actual fact, economically strong community members would be able to contribute reasonably, either in the form of tax or other form of investment, for the well-being of the community. Thus, the

moment a cycle of decline is ignited, the poverty engendered by the interdependence of factors grows at a terrific progression.

4. Method of Study

Given the focus of this study, which is about investigating the extent oil producing activities in the Niger Delta region have affected the well-being of selected oil producing communities, survey approach based on participatory research methods is adopted. This is following the works of Hall (1975); Freire (1982); Horton and Freire (1990); and Chambers (2008). Using the tools of direct observation, questionnaires were administered on sampled communities and household in those communities. To this end, while purposive sampling method was employed to determine the communities included in the study, simple random sampling techniques were adopted in the administration of the structured questionnaires on the respondents from the selected communities. This was to ensure the study is focused and the generated data are adequately representative of the population. The ensuing data was analyzed using descriptive approach involving averages/charts and Logit models. Detailed methodology is presented as follows:

4.1. Research Design

Given the nature of the study, while some secondary information from various sources were of immense benefit to the success of this work, the main pool of information was procured directly from the field. As a result, a combination of survey and observation techniques was adopted. By the survey technique, structured questionnaire was administered on selected household and community leaders across the communities identified for this study

4.2. Population of Study

For the prosecution of this work it is imperative to clarify the issue of *study area population* and that of *target population/sampling frame*. While the *study area population* represents the total number of male and female (including adult and children) residing within the geographical area, the *target population/sampling frame* represents a group of listed households in the selected communities from which samples are drawn. But a household is a family unit consisting of a man and his wife/wives, their children and other dependent relatives living together under one roof. So, in determining *target population/sampling frame* household numbering/listing exercise was conducted. It is on the number of listed/numbered households that the sample size is computed and study samples generated.

Following from above, it would become clear that the *study/target population*, which is the same as the *sample frame* is the population of households (that is, the number of listed households). Focusing on the household/family units is considered important for this study because in a simple macroeconomic model, the workings of an economy is

measured through the interaction between the household and the business sectors. In fact, the household sector from the traditional to the modern economic system has remained the most important sector that supplies the most basic input required for daily economic operations. Hence, the welfare of the sector is crucial for the welfare of the macro economy. This is why studying the household units is fundamental and very important in studying the performance of the economy. This is the reason for focusing on the household units in order to measure the well-being impact of oil production in the Niger Delta region.

4.3. Sample and Sampling Procedure

A combination of purposive and random sampling techniques were used to select the samples studied. Since the purpose of the study is to investigate the socio-economic impact of oil production on selected communities, it is imperative that communities within the Niger Delta region that are involved one way or the other in the production of oil are selected. On account of this, purposive sampling technique was adopted in selecting the five communities involved in the study. Thereafter, random sampling technique was employed to select the households identified for survey administration.

Following from the above, after numbering/listing the households, the sample size was determined based on the work of Krejcie and Morgan (1970), which provided for the computation of the sample size thus:

$$n = \frac{\chi^2 * N * (1-P)}{\{ME^2 * (N-1)\} + \{\chi^2 * P * (1-P)\}} \quad (1)$$

Where:

n = sample size

χ^2 = Chi-Square for the specified confidence level at 1 degree of freedom

N = Population size

P = Population Proportion (.50 for Table in "Appendix B")

ME = Desired Margin of Error (expressed as a proportion)

When the above formula was applied, the sample size was computed to be 658 households. This computation is presented in Table 3:

Table 3. Study sample size.

Community	Target Study Population/Sample Frame	Sample Size
Kpean	94	80
Oloibiri	117	108
Mkpanak	169	132
Upenekang	294	169
Ibekwe	285	169
Total	959	658

The survey administration therefore involved completion of 658 household questionnaires.

4.4. Method of Analysis and Model Specification

Given the nature of data generated from the survey exercise, the core analytical tool was logit/probit regression

model following the work of: Ojide *et al* (2015); Wang *et al* (2011); Moreno-Torres (2011); Batzias *et al* (2012); and Lera *et al* (2013). Generally, the logit/probit models are developed following the works of Cornfield (1951 and 1956), and Stigler (1986). It may be presented generally as

$$y^* = \sum \beta_k x_k + \varepsilon_k \quad (2)$$

Where y^* is an unobserved, continuous, underlying tendency behind the observed ordinal response (rating). The X_k represent the independent variables, while the β_k represent the associated parameters. The error term (ε_k) captures stochastic (unobserved) variation, assumed to be distributed logistically for logit models and distributed normally for probit models.

Specifically, therefore, the logit model is presented as:

$$\ln\left(\frac{P_i}{1-P_i}\right) = \sum_{k=0}^{k=n} \beta_k \times_{ik} \quad (3)$$

while the probit model is presented as:

$$\Phi^{-1}(P_i) = \sum_{k=0}^{k=n} \beta_k \times_{ik}. \quad (4)$$

The logit/probit model is very useful in handling dichotomous and polytomous data, which is the nature of data we generated from the survey. Following from this position therefore, the analytical models employable in this study are logit and they are specified as follows:

i) Living Condition Analysis

The living condition of the people was investigated based on the model presented below

$$\hat{L}_i = \ln\left(\frac{P_i}{1-P_i}\right) = \hat{\beta}_1 + \hat{\beta}_2 OCU + \hat{\beta}_3 INC + u_i \quad (5)$$

Where the equation expresses the fact that living house type (the dependent variable) is influenced by the type of occupation and income being earned by the households in the communities.

ii) Life Sustainability Analysis:

The study also investigated how the distance to health facility (DTHF) and drinking water quality (DWQ) determines the sustainability of lives in the communities by employing Logit/Probit model thus:

$$\hat{L}_i = \ln\left(\frac{P_i}{1-P_i}\right) = \hat{\beta}_1 + \hat{\beta}_2 DTHF + \hat{\beta}_3 DWQ + u_i \quad (6)$$

Where the dependent variable is a dichotomous variable stating whether the households have lost family members or not in the communities. So, the model investigated the extent to which losing of family members could have been influenced by the distance to health facility and the quality of drinking water.

5. Stylized Facts on Oil Production in Nigeria

Detailed information on the oil driving capacity of the Nigerian economy vis-à-vis the welfare status of the oil

producing communities are presented here. It is important to note that following the discovery and production of oil in commercial quantities, oil revenue displaced agriculture and took the prime position as the major contributor to government revenue earning as presented in Table 4 and Figure 2. According to the information elicited from the

Table and the graph, oil contribution to Total Revenue rose from 64.44% in 1981, with some fluctuations within the period, to 88.64% in 2006. Although it fell slightly due to events in the global oil market, it is still high as it contributed 67.47% to government revenue in 2014.

Table 4. Nigeria's ratio of oil revenue to total revenue, 1981 – 2014.

Year	Ratio of Oil Revenue to Total Revenue (%)	Ratio of Non-Oil Revenue to Total Revenue (%) [*]
1981	64.44	35.56
1982	68.35	31.65
1983	69.02	30.98
1984	73.48	26.52
1985	72.58	27.42
1986	64.37	35.63
1987	74.97	25.03
1988	71.86	28.14
1989	72.64	27.36
1990	73.28	26.72
1991	81.85	18.15
1992	86.15	13.85
1993	84.09	15.91
1994	79.34	20.66
1995	70.56	29.44
1996	78.07	21.93
1997	71.52	28.48
1998	69.95	30.05
1999	76.32	23.68
2000	83.5	16.5
2001	76.52	23.48
2002	71.07	28.93
2003	80.55	19.45
2004	85.57	14.43
2005	85.85	14.15
2006	88.64	11.36
2007	77.92	22.08
2008	83.02	16.98
2009	65.89	34.11
2010	73.88	26.12
2011	79.87	20.13
2012 ^A	75.33	24.67
2013 ^{A1}	69.77	30.23
2014 ^{A2}	67.47	32.53

Source: National Bureau of Statistics (NBS) and CBN Statistical Bulletin (Various Issues).

Note: /A New GDP figures with new classifications, comprising 46 activity sectors; formerly, there were 33 activity sectors.

^{A1}Revised; ^{A2}Provisional; *Author's Computation.

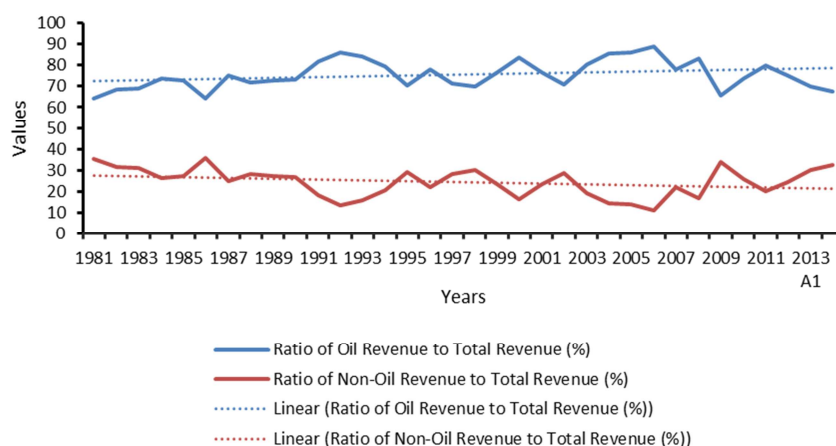


Figure 2. Ratio of oil and non-oil revenue to total revenue, 1981 – 2014.

6. Results and Analysis of Findings

6.1. Preliminaries

To assess the impact of oil production on the welfare of oil producing communities, how the income generating capacity of the people has been affected was examined, thus leading to being able to explain their living condition. Availability of basic life support infrastructure such as health facility and portable water was also examined to help explain the vulnerability of the people. The result of these analyses are presented here:

6.2. Living Condition Analysis

Analyzing the well-being of the people involves an assessment of their capacity to maintain a basic standard of living. Before the advent of oil, the people of the Niger Delta region were predominantly farmers and fisherfolks, the trade that had supported them adequately well over the years. But with the coming of oil production and its negative effect on land and water resources, farming and fishing started losing their attraction as people began to queue for government jobs and other means of income generation. A look at Table 5 and Figure 3 confirms this as it reveals that only 60 and 46 households representing approximately 9% and 7% of our sample are still involved in farming and fishing during the period under study. The rest are civil servants (25.99%), artisans (7.14%), motorcyclists (8.96%), taxi drivers (8.36%), traders (19%), and other workers (14.44%).

Having examined the occupational distribution, the income and expenditure pattern of the people were considered with a view to determining the expenditure and income poverty line. This helped to determine the relative percentage of the population in poverty. Figures 4 to 7 showed the distribution of income and expenditure in the communities. The distribution pattern shows that a reasonable proportion of the population clustered around the low-income region. This is explained by the peakness of

the curves and its longer tail to the right. But the expenditure distribution is more normal given the fact that some of the people spent more than they earn given the fact that they have access to more funds from credit granting such as cooperative societies, among others.

Table 5. Occupational distribution across selected Niger Delta communities – overall.

Occupation	Frequencies	Percent
Farming	60	9.12
Civil Servants	171	25.99
Fishing	46	6.99
Artisans	47	7.14
Motorcyclists	59	8.96
Taxi Drivers	55	8.36
Trading	125	19
Other Workers	95	14.44
Total	658	100

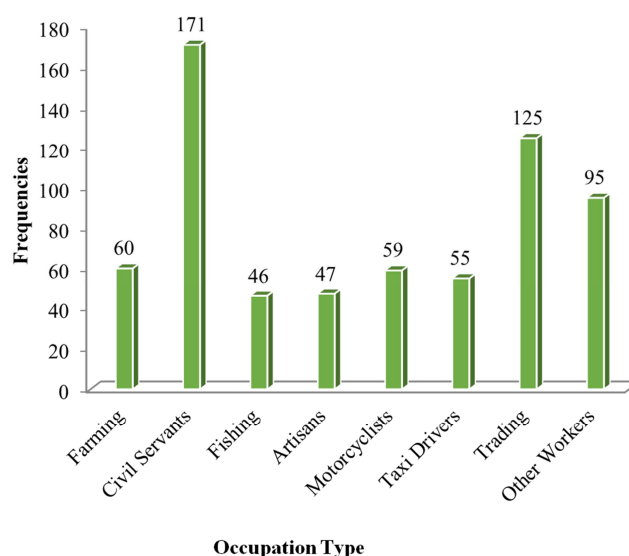


Figure 3. Niger Delta occupational distribution in selected communities.

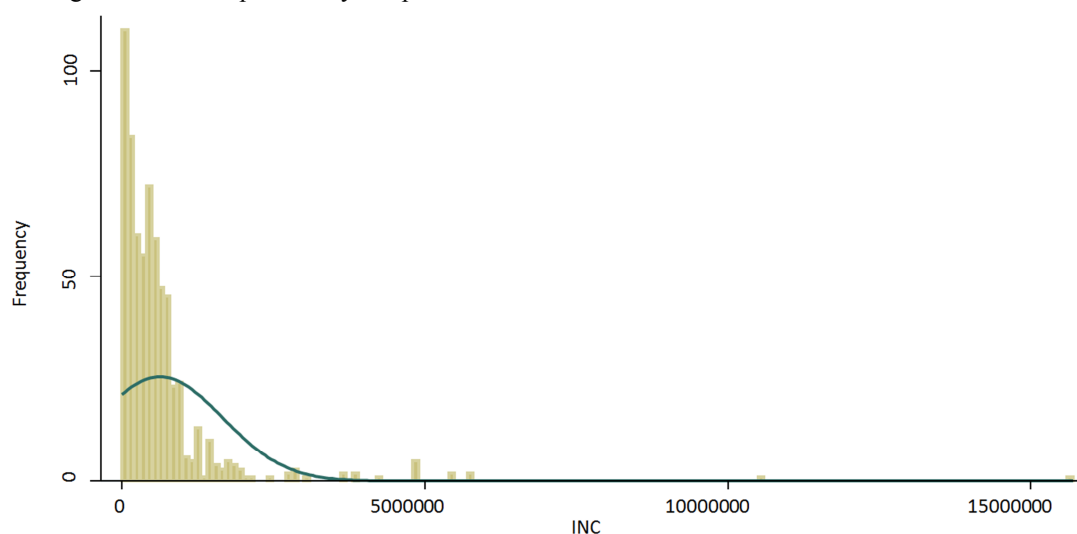


Figure 4. Household income for the Niger Delta region for selected communities.

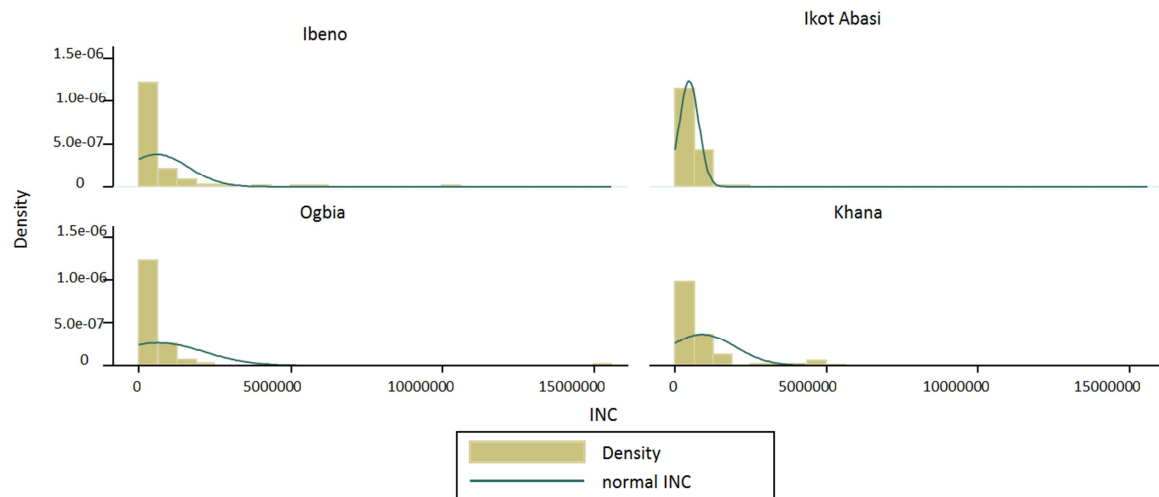


Figure 5. Household Income for Selected Niger Delta Communities by LGA.

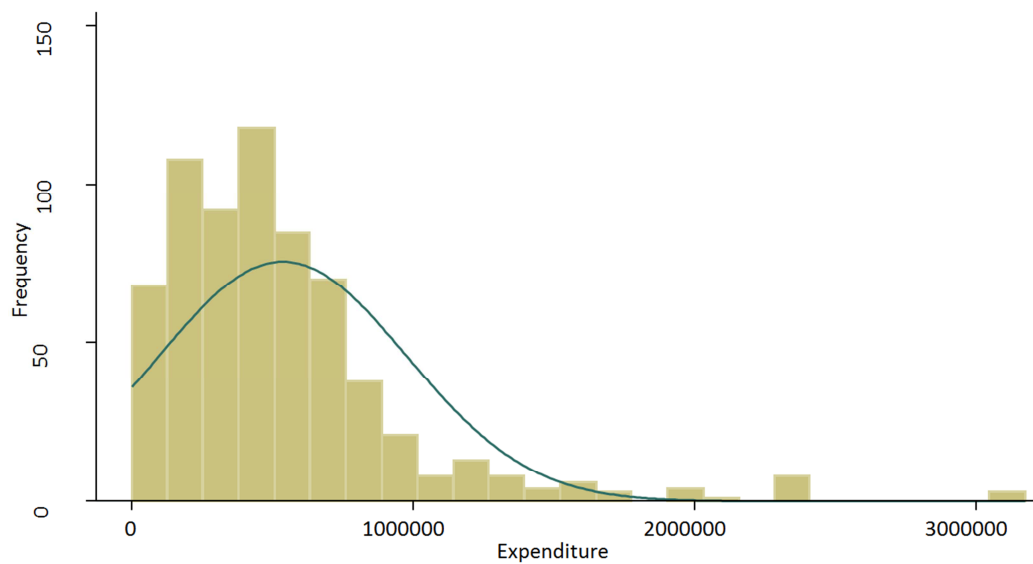


Figure 6. Household expenditure for the Niger Delta for selected communities.

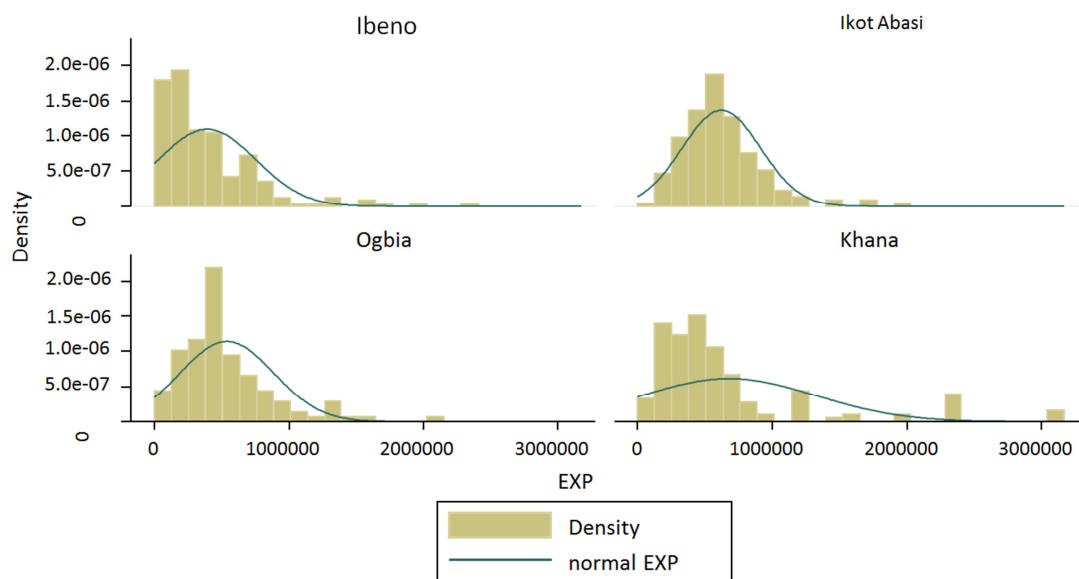


Figure 7. Household expenditure for selected Niger Delta communities by LGA.

The implication from this presentation is a depiction of high income inequality, which is buttressed in Table 6 and Figure 8

Table 6. Income distribution for selected Niger Delta communities.

Income Category	Income	% of Population	% of Income	Cumulative% of Income	Area Under Lorenz Curve	
0	0	0	0	0	0	Area A = 0.204721
1	2089960	0.2	0.031306	0.031306	0.003131	Gini = 0.409441
2	6438600	0.4	0.096446	0.127752	0.015906	
3	9877200	0.6	0.147954	0.275706	0.040346	
4	17752800	0.8	0.265925	0.541632	0.081734	
5	30600000	1	0.458368	1	0.154163	
Total	66758560				0.295279	

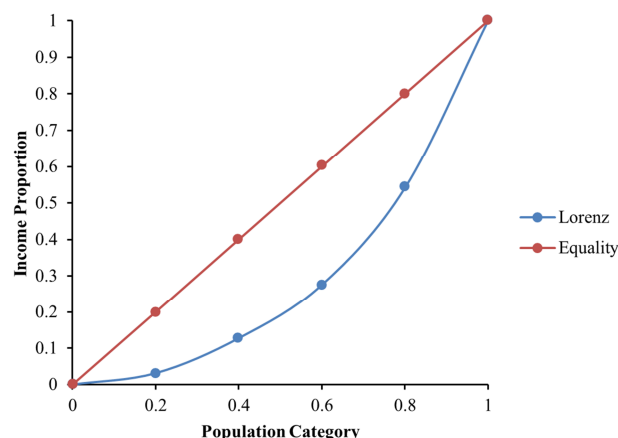


Figure 8. Selected Niger Delta communities Lorenz curve, 2016.

The Gini index of 0.409441 for the selected communities (as computed) revealed that there was income inequality of 81.89% among the households in the communities under

study. This value of Gini Coefficient indicated a wider gap between the low and the high-income households in the communities. It implies that a smaller proportion of the population controls larger proportion of the available resources.

The decomposition from the Lorenz curve analysis (as presented in Table 7) revealed that while the lower 50% of the population controlled 20% of total income earned by the households in the communities (amounting to 0.4% share by 1% of the population), the upper 50% controlled 80% of total income accruable to all the households (amounting to 1.6% share by 1% of the population) in the communities. Also, while the lower 10% and 20% controlled 1% and 4% of total income respectively (amounting to 0.1% and 0.2% share by 1% of the population), the upper 10% and 20% controlled 29% and 45% respectively (amounting to 2.9% and 2.25% share by 1% of the population).

Table 7. Gini index/Lorenz curve analysis for selected communities.

Lower Population Segment			Upper Population Segment		
Category	Income Controlled (%)	Share by 1%	Category	Income Controlled (%)	Share by 1%
10	1	0.1	10	29	2.9
20	4	0.2	20	45	2.25
30	8	0.27	30	60	2
40	14	0.35	40	71	1.775
50	20	0.4	50	80	1.6

The inequality may not have been that high if under the derivation principle there was provision to compensate households in the oil producing communities who were displaced from their original and traditional sources of income following the production of oil, whose situations were compounded by the sufferings inflicted on them

generally by the negative effects of oil production. But because this was not done their earning capacity grossly dwindled, which impacted negatively on their well-being. This is buttressed by the poverty threshold information presented in Table 8 and 9.

Table 8. Income poverty threshold for selected Niger Delta communities.

	Overall	Ibendo	Ikot Abasi	Ogbia	Kpean
Core Poverty Threshold (Median)	142560	82500	159192	150480	178200
Core Poverty Threshold (Mean)	207962.73	193926.35	154025.72	206387.51	297425.96
Moderate Poverty Threshold (Median)	285120	165000	318384	300960	356400
Moderate Poverty Threshold (Mean)	415925.47	387852.7	308051.44	412775.02	594851.93
Core Pop. In Poverty (Median)	23.86	13.28	25	24.04	5.67
Core Pop. In Poverty (Mean)	29.94	46.06	24.4	25.93	17.02
Moderate Pop. In Poverty (Median)	13.68	23.24	5.95	16.67	12.77
Moderate Pop. In Poverty (Mean)	17.02	16.18	6.55	23.15	36.88
Total Pop. In Poverty (Median)	37.54	36.51	30.95	40.71	18.44
Total Pop. In Poverty (Mean)	46.96	62.24	30.95	49.07	53.9

As revealed by Table 8, while the core poverty threshold (median) for the communities under study was N142560 per annum, the core poverty threshold (mean) was N207962.73. On the other hand, the moderate poverty thresholds for the communities are N285120 (Median) and N 415925.47 (Mean). Following from these positions, while the core population in poverty was 23.86% (Median) and 29.94% (Mean); the moderate population in poverty was 13.68% (Median) and 17.02% (Mean). The total population in poverty for the communities under study therefore summed up to 37.54 (Median) and 46.96% (Mean).

But while the overall statistics shows that the population in poverty is generally below 50% when the Mean Poverty threshold is employed, a look at the specific statistics for each of the communities revealed varying degrees of poverty. For instance, while for Ibene LGA the poverty rate is 36.51% (Median) and 62.24% (Mean); it is 18.44% (Median) and 53.9% (Mean) for Kpean LGA. It is also 40.71% (Median) and 49.07% (Mean) for Ogbia LGA.

Although the National Bureau of Statistics (NBS) uses the Mean threshold to determine poverty rate (see NBS, 2010: 10), the most popular practice now is the employment of the Median threshold (see Gordon, 2006). Given the fact that the Median is the point that divides the distribution into two equal parts, any income award aimed at lifting the poor out of poverty would not raise the Median but would definitely

raise the Mean of the distribution, implying that the threshold would also keep changing. As a result, it would be difficult to measure the effect of any intervention aimed at raising people out of poverty, since the poverty level itself would be changing with the Mean threshold poverty rate determinant.

But poverty is not only measured from income perspective, it is also measured from expenditure perspective. To this end, therefore, the expenditure threshold is presented in Table 9. From the result presented in Table 9, while the overall core expenditure poverty threshold for the communities was N412.27 and N484.24 per day for Median and Mean threshold respectively, it was N824.55 and 968.49 for the Moderate Expenditure poverty threshold. The implication was that, on the average those who could not afford to spend the threshold amount per day are in poverty. Following from this analysis, 13.37% and 16.72% were core poor from the Median Mean perspective while 17.48% and 19.15% were moderately poor, bringing the total percentage of population in expenditure poverty to 30.85% and 35.87% respectively.

Specifically, however, the analysis revealed that the poverty rate was higher in Ibene and Kpean LGAs when compared with other areas. This is given the fact that from the Median and the Mean perspective as presented, while the poverty rate for Ibene was 34.44% and 43.15%, it was 25.53% and 43.26% for Kpean.

Table 9. Expenditure poverty threshold for selected Niger Delta communities.

	Overall	Ibene	Ikot Abasi	Ogbia	Kpean
Core Poverty Threshold (Median)	412.27	252.25	522.39	412.27	433.97
Core Poverty Threshold (Mean)	484.24	353.78	562.35	486.51	612.43
Moderate Poverty Threshold (Median)	824.55	504.49	1044.79	824.55	867.95
Moderate Poverty Threshold (Mean)	968.49	707.57	1124.71	973.02	1224.85
Core Pop. In Poverty (Median)	13.37	14.52	2.98	8.33	4.96
Core Pop. In Poverty (Mean)	16.72	22.82	2.98	8.33	9.22
Moderate Pop. In Poverty (Median)	17.48	19.92	16.07	16.67	20.57
Moderate Pop. In Poverty (Mean)	19.15	20.33	20.24	21.3	34.04
Total Pop. In Poverty (Median)	30.85	34.44	19.05	25	25.53
Total Pop. In Poverty (Mean)	35.87	43.15	23.21	29.63	43.26

For instance, while for Ibene LGA, the Core Expenditure Poverty threshold was N252.25 and N353.78 for Median and Mean points respectively, it was N433.97 and N612.43 for Kpean. Also, while the Moderate Expenditure threshold for Ibene was N504.49 and N707.57 for Median and Mean points respectively, it was N867.95 and N1224.85 for Kpean.

Consequent upon the presentation of both the income and

expenditure thresholds, it is evident that the poverty level in those communities is relatively high. Exploring the living conditions further, the result of living house type and life sustainability analysis are presented as follows:

(a) Living House Type (LHOT) Analysis: The multinomial logit result is presented in Tables 10 and 11.

Table 10. Preliminary result on living house type analysis.

Iteration 0	log likelihood	=	-424.04354
Iteration 1	log likelihood	=	-413.34879
Iteration 2	log likelihood	=	-409.04248
Iteration 3	log likelihood	=	-408.8005
Iteration 4	log likelihood	=	-408.79961
Iteration 5	log likelihood	=	-408.79961
Number of Obs			658
LR χ^2 (2)			30.49
Prob > χ^2			0.0000
Pseudo R ²			0.0359
Log likelihood			-408.79961

Table II. Detailed result on living house type analysis.

LHOT	Parameters	Coef	Std. Err	Z	$p > z $	(95% Conf. Interval)	
Mud	Ocu	-0.791012	0.0438109	-1.81	0.071	-0.164969	-0.0067665
	Inc	-7.85E-07	2.70E-07	-2.91	0.004	-1.31E+06	-2.56E-07
	Cons	-0.8175784	0.2502863	-3.27	0.001	-1.30813	-0.3270263
Thatch	Ocu	-0.0344064	0.0716455	-0.48	0.631	-0.174829	0.1060162
	Inc	-2.13E-06	6.83E-07	-3.11	0.002	-3.46E-06	-7.88E-07
	Cons	-1.683952	0.435277	-3.87	0.000	-2.537079	-0.8308245
Cement	Base Outcome						

Before conducting a detailed discussion of the result, it is important to underscore the fact that multinomial logistic regression, on a general note employs maximum likelihood estimation approach, which is an iterative procedure. While the first iteration is called iteration 0 because it is the maximum likelihood of the empty or null model with no predictors, the next iteration has the predictors included in the model. At each iteration the maximum likelihood diminishes in order to fulfill the goal, which is the minimization of the log likelihood. The model is said to have converged when the difference between successive iterations becomes smallest. It is at this point the iteration stops and results are displayed.

From the results displayed therefore, the log likelihood converged at the point -408.79961 with the LR Chi Square (2) = 30.49 being the likelihood ratio Chi Square test indicating that for both equations, mud house and thatch house relative to cement house, at least one of the predictors is not equal to zero. This is confirmed by the probability of the Chi Square. The small value of $Prob > \chi^2 = 0.0000$ would, in fact, lead support the conclusion that at least one of the regression coefficients in the model is not equal to zero.

From the results, the Living House Type (LHOT) is the response variable in the multinomial logistic regression, and underneath it are two replicates of the predictor variables representing the two models that are estimated: mud house relative to cement house, and thatch house relative to cement house. So, in this analysis, cement house is the base outcome. There are two levels of reference points because every multinomial logit models estimates $k-1$ models setting one as the reference point, where k is the number of levels of dependent variable. It would be observed that the dependent variable has three levels, which are: Mud house, Thatch house, and Cement house. So, by default, the program chose cement house as the base outcome, hence the estimation of a model for mud house relative to cement house and another model for thatch house relative to cement house.

According to the parameter estimates in the mud house model, the occupation coefficient of -0.791 indicated that if a better change of job occurred, which would result in households moving one point up, the multinomial log-odds for mud house relative to cement house would be expected to decrease by 0.791 units while holding other variables in the model constant. Although testing at 5% significance level it

would be concluded that the coefficient is not statistically different from zero in this model, its sign is a strong point that holds the future strength of the variable. But in any case, if the significance level were to be set at 10%, for instance, our decision would have been different given the fact that its $p > |z|$ is 0.071. Looking at the income coefficient of -7.85e-07, it implied that with an increase in income by one unit the multinomial log-odds for mud house would drop by 7.85e-07 units while all other variables in the model are held constant. What this means in summary is that with better job and enhanced income the households on the average would prefer to live in a cement house instead of mud house. When tested at the 5% significance level, with z of -2.91 and $p > |z|$ of 0.004, it was concluded that the coefficient is statistically different from zero. So, income is a strong variable determining the type of house people would like to live in.

The next item is the multinomial logit estimate for mud house relative to cement house when the predictor variables are evaluated at zero (the constant). The coefficient (-0.818) of this variable revealed that the log-odds of preferring mud house to cement house would drop even without occupation and income in the model. This implied that ordinarily, the people would prefer to live in cement house even when they have neither job nor income. Thus, their living in mud house is merely a condition they cannot help at the moment. Testing this at the 5% significance level, the z of -3.27 and $p > |z|$ of 0.001 indicated that the coefficient of the variable is statistically different from zero, meaning that, all things being equal, the people would prefer to live in a cement instead of mud house.

Looking at the thatch house model, with the coefficient of -0.034, it was clear that the availability of a better job would result in households moving one point up in their desire for cement house. This is because the multinomial log-odds for thatch house relative to cement house is expected to decrease by 0.034 units while holding other variables in the model constant. Also, the income coefficient of -2.13e-06 connotes that with an increase in income by one unit the multinomial log-odds for thatch house would drop by 2.13e-06 while all other variables are held constant in the model. However, when tested at 5% significance level the conclusion is drawn that while the coefficient of occupation was not statistically different from zero (given $z = -0.48$ and $p > |z| = 0.631$) in this model, the coefficient of income is statistically different

from zero (given $z = -3.11$ and $p > |z| = 0.002$). This implied that while the coefficient of occupation in this model is not statistically significant to drive living house preference, the coefficient of income is statistically significant. But on the whole going by the sign of the coefficients, the two variables have the potentials at driving the preference between thatch house and cement house. The implication of this finding was that with better job and enhanced income the households on the average would prefer to live in a cement house instead of thatch house.

Considering the multinomial logit estimate for thatch house relative to cement house when all the predictor variables are evaluated at zero (the constant). Its coefficient (-1.684) indicates that the log-odds of preferring thatch house to cement house would drop even without occupation and income in the model. This implied that ordinarily, the people would prefer to live in cement house even when they have

neither job nor income. So, their living in thatch house was merely a condition they could not help at the moment. Testing this at the 5% significance level, the z of -3.87 and $p > |z|$ of 0.000 indicated that the coefficient of the variable was statistically different from zero, meaning that, all things being equal, the people would prefer to live in a cement instead of a thatch house.

One very important component of the logit analysis is the relative risk ratio (r r r), which is computed by exponentiating the multinomial logit coefficients (e^{coeff}). The main aim behind this is to measure the relative risk for preferring one variable to another. To this end, for the living house type (LHOT) analysis, the relative risk associated with preferring mud house to cement house on the one hand; and thatch house to cement house on the other, were obtained. This result is as presented in Tables 12.

Table 12. Detailed relative risk ratio result on living house type analysis.

<i>I</i>	<i>Parameters</i>	<i>RRR</i>	<i>Std. Err</i>	<i>Z</i>	<i>p > z </i>	<i>(95% Conf. Interval)</i>	
<i>Mud</i>	<i>Ocu</i>	0.9239464	0.0404789	-1.81	0.071	0.8479201	1.006789
	<i>Inc</i>	0.9999992	2.70E-07	-2.91	0.004	0.9999987	0.9999997
	<i>Cons</i>	0.4414995	0.1105013	-3.27	0.001	0.270325	0.7210648
<i>Thatch</i>	<i>Ocu</i>	0.9661788	0.0692224	-0.48	0.631	0.8396006	1.11184
	<i>Inc</i>	0.9999979	6.83E-07	-3.11	0.002	0.9999965	0.9999992
	<i>Cons</i>	0.1856389	0.0808044	-3.87	0.000	0.0790971	0.4356899
<i>Cement</i>	<i>Base Outcome</i>						

Looking at the Mud House Model, a relative risk ratio of 0.924 associated with occupation indicates that with a one unit change in occupation (or if occupation were to get better) the relative risk for mud house relative to cement house is expected to rise by a factor of 0.924 given that other variables in the model are held constant. This implied that if occupation were to get better, the people are likely to prefer a cement house to a mud house. Also, a relative risk ratio of approximately 1.0 associated with income implied that with a one unit change in income, the relative risk for mud house compared to cement house is expected to rise by a factor of 1.0 (approx.) given that other variables in the model are held

constant. This means that if income gets better, the people are likely to prefer a cement house to a mud house.

With the Thatch House Model, the situation is approximately the same with the Mud House Model. This was because while the risk factor associated with occupation is 0.966, the factor associated with income is approximately 1.0. Hence, on a general note, the relative risk ratio implied that households in the communities under study would prefer cement house to a thatch house if occupation or income should change positively.

(b) Life Sustainability Analysis: The logit result for life sustainability is presented here in Tables 13 to 15

Table 13. Preliminary result on life sustainability analysis.

<i>Iteration 0</i>	<i>log likelihood</i>	=	-390.8789
<i>Iteration 1</i>	<i>log likelihood</i>	=	-359.22834
<i>Iteration 2</i>	<i>log likelihood</i>	=	-358.2457
<i>Iteration 3</i>	<i>log likelihood</i>	=	-358.24397
<i>Iteration 4</i>	<i>log likelihood</i>	=	-358.24397
	<i>Number of Obs</i>		658
	<i>LR chi² (2)</i>		65.27
	<i>Prob > chi²</i>		0.0000
	<i>Pseudo R²</i>		0.0835
	<i>Log likelihood</i>		-358.24397

Table 14. Detailed result on life sustainability analysis.

<i>Parameters</i>	<i>Coef</i>	<i>Std. Err</i>	<i>Z</i>	<i>p > z </i>	<i>(95% Conf. Interval)</i>	
<i>DTHF</i>	0.0014721	0.0006318	2.33	0.020	0.002338	0.0027103
<i>DWQ</i>	0.8813565	0.1230114	7.16	0.000	0.6402586	1.122454
<i>Cons</i>	-3.627266	0.3923931	-9.24	0.000	-4.396342	-2.858189

Table 15. Detailed odds ratio result on life sustainability analysis.

Parameters	Odds Ratio	Std. Err	Z	p > z	(95% Conf. Interval)	
DTHF	1.001473	0.0006327	2.33	0.020	1.000234	1.002714
DWQ	2.414172	0.2969706	7.16	0.000	1.896971	3.072386
Cons	0.0265888	0.0104333	-9.24	0.000	0.0123223	0.0573725

As could be seen from the results above, there were two effects in our model, which were Distance to Health Facility (DTHF), and Drinking Water Quality (DWQ). Looking at the goodness of fit tests of the model (such as $LR\ chi^2(2) = 65.27$ and $Prob > \chi^2 = 0.000$), it is visible that the model is well fitted to our data. This implied that one or more of the two effects in the model is important for predicting the probability of not losing a family member. The tests for parameters suggested that each of the effects in the model is significant at the 5% significance level. Given the fitted model presented as equation 7.

$$\log\left(\frac{p}{1-p}\right) = -3.627 + 0.0015DTHF + 0.881DWQ \quad (7)$$

We can say that for a one unit change in the distance to health facilities the log odds of losing a family member is 0.0015 with other variables in the model held constant. In other words, as the distance to health facility increases, for instance, the log odds of losing a family member rises by 0.0015. Also, the coefficient of drinking water quality variable (which was ranked from Excellent = 1 down to Poor = 4) indicated that with a one unit change in drinking water quality along the scale where moving up the scale connotes a drop in the quality of drinking water, the log odds of not losing a family member is 0.881 with other variables in the model held constant.

From the information on the odds ratio, it is evident, for instance, that with a one unit change in the distance to health facility (DTHF), the log odds of losing a family member would change by 1.001473. On the other hand, the odd ratio of the second predictor variable – drinking water quality (DWQ) indicates that a one unit change in the quality of drinking water would change the log odds of losing a family member by 2.414. These findings further revealed that while the two predictors have the capacity to predict changes in the log odds of losing a family member, drinking water quality is a stronger predictor of changes in the dependent variable.

7. Summary, Recommendations and Conclusion

7.1. Summary and Recommendations

As shown from the presentation, the growth of the Nigerian economy is attributable to the growth of oil earnings given the higher contribution of oil to total revenue. Ironically, however, the poor condition of the Niger Delta people can also be greatly attributed to oil production. This is because following the deprivation of their means of livelihood due to oil production, their living condition, which is determined by their occupation and income generating

capacity including access to basic infrastructural facilities such as health and portable water has been negatively affected. This has exacerbated the problem of poverty and inequality in the communities and region as a whole, as reflected in the outcome of the analysis. Thus, the people are living in thatch and mud houses at the moment, for instance, because of their income level, which is determined by what their occupation is able to offer them. A better alternative would be preferred if accessible.

Following the findings in this study, therefore, the following recommendations are offered:

1. That given the fact that the poverty situation in the Niger Delta is traceable to the erosion of the people's means of livelihood following the degradation of the environment as a result of oil production, thereby impacting negatively on their income generating activities, a modification of natural resource exploration and exploitation law is essential. This is to ensure adequate compensation for land take-over, spills and general pollution arising from oil production. It is expected that when this is in place, the arising poverty problem stemming from losses of rivers and farmlands on which the income generating activities of the people depend would have been addressed to a reasonable extent.
2. That given the fact that the availability of basic infrastructures such as potable water and health facilities has been grossly inadequate, both government and the oil companies should take practical steps to ensure the availability of potable water and reasonably equipped hospitals in the communities with the right staffing. This would enable the people to have access to health facilities whenever the need arises. This was one of their cardinal expectations while welcoming the production of oil in their communities.

7.2. Conclusion

The finding in this study (which extracts substantially from the PhD thesis by Orebiyi, 2016) justifies the fact that the people's poverty condition has been perpetuated because after their natural source of livelihood (farming and fishing) was rendered highly unproductive, there was no alternative provision to cushion the effect of the deprivation. This is the core of the Niger Delta problem and it requires proactive attention from all concerned stakeholders.

References

- [1] African Ranking (2015). Top 10 Oil Producing Countries in Africa. Available at www.africanranking.com. Retrieved on 20th December, 2015.

- [2] Asen, R. (2002). *Visions of Poverty: Welfare Policy and Political Imagination*. East Lansing: Michigan State University Press, p. 234.
- [3] Asian Development Bank (1999). *Fighting Poverty in Asia and the Pacific: The Poverty Reduction Strategy of the Asian Development Bank*. Manila.
- [4] Batzias, F. A., Zoupanidou, E. E., Kopsidas, O. N. and Siontorou, C. G. (2012). *Contingent Valuation for the Preservation/Restoration of Three Lakes in Northern Greece*. Available at www.wseas.us/e-library/conferences/2012. Retrieved on 15th May, 2012
- [5] Bettinger, F. (1977). *How I Raised Myself From Failure to Success in Selling*. New York: Simon and Schuster, p. 388.
- [6] Bradshaw, T. K. (2000). Complex Community Development Projects: Collaboration, Comprehensive Programs and Community Coalitions in Complex Society. *Community Development Journal*, 35 (2): 133-145.
- [7] Bradshaw, T. K. (2006). *Theories of Poverty and Anti-Poverty Programs in Community Development*. Working Paper Series No. 06-05, p 10 – 12. Rural Poverty Research Center. <http://www.rprconline.org/>
- [8] Bradshaw, T. and Muller, B. (2003). Shaping policy decisions with spatial analysis. In: Goodchild, F. and Janelle, D. G. (eds), *Spatially integrated social science: Examples in best practice*. New York: Oxford University Press, p 300 - 322
- [9] Bradshaw, T. K., King, J. R. and Wahlstrom, S. (1998). Catching on to Clusters. *Planning*, 65 (6): 18-21.
- [10] Chambers, R. (2008). PRA, PLA and Pluralism: Practice and Theory. In: Peter Reason and Hilary Bradbury (Eds.), *The Sage Handbook of Action Research. Participative inquiry and practice* (2nd ed.), London: Sage, p. 297-318.
- [11] Cornfield, J. (1951). A Method of Estimating Comparative Rates from Clinical Data. *Journal of the National Cancer Institute*, 11: 1269-1275.
- [12] Cornfield, J. (1956). A Statistical Problem Arising from Retrospective Studies. In: J. Neyman (Ed.), *Proceedings of the Third Berkeley Symposium on Mathematical Statistics and Probability*, Berkeley, Calif., University of California Press, p. 135-148.
- [13] Fischer, C. S., Hout, M., Jankowski, M. S., Lucas, S. R., Swidler, A. and Voss, K. (1996). *Inequality by Design: Cracking the Bell Curve Myth*. Princeton: Princeton University Press, p. 315.
- [14] Freire, P. (1982). Creating Alternative Research Methods. Learning to do it by doing it. In: Hall, B., Gillette, A. and Tandon, R. (eds.) *Creating Knowledge: A Monopoly*. New Delhi, Society for Participatory Research in Asia, p. 29-37.
- [15] Gertz, C. (1973). *The Interpretation of Cultures*. New York: Basic Books, Inc., Publishers, p. 298.
- [16] Goldsmith, W. W. and Blakely, E. J. (1992). *Separate Societies: Poverty and Inequality in American Cities*. Philadelphia: Temple University Press, p 125.
- [17] Gordon, D. (2006). The Concept and Measurement of Poverty in Poverty and Social Exclusion in Britain. Bristol: The Policy Press, p. 296.
- [18] Hall, B. L. (1975). Participatory Research: An Approach for Change. *Convergence*, 8 (2): 24 - 32.
- [19] Hansen, N. (1970). *Poverty and the Urban Crisis*. Bloomington: Indiana State University, p. 311.
- [20] Harding, D. J. (2005). *Mechanisms of Neighborhood Effects: Linking Culture and Structure to Adolescent Outcomes in Poor Neighborhoods*. Ph.D. Dissertation. Program in Sociology and Social Policy, Harvard University.
- [21] Hays, S. (2003). *Flat Broke with Children: Women in the Age of Welfare Reform*. New York: Oxford University Press, p. 329.
- [22] Horton, M. and Freire, P. (1990). *We Make the Road by Walking: Conversations on Education and Social Change*. Philadelphia: Temple University Press, p. 976.
- [23] Jencks, C. (1996). Can we Replace Welfare with Work? In: Darby, M. R. (ed), *Reducing Poverty in America*. Thousand Oaks: Sage, p 69 – 81.
- [24] Kartz, M. B. (1989). *The Undeserving Poor: From the War on Poverty to the War on Welfare*. New York: Pantheon Books, p. 289.
- [25] Krejcie, R. V. and Morgan, D. W. (1970). Determining Sample Size for Research Activities. *Educational and Psychological Measurement*, 30, 607-610.
- [26] Kupper, C. and Vagh, M. (2014). *Cartographie du petrole en Afrique de l'Ouest, Groupe de Recherche de d'information sur la paix et la securite*, Brussels, January, 2014.
- [27] Lamont, M. (1992). *Money, Morals, Manners: The Culture of the French and American Upper Class*. Chicago: University of Chicago Press, p. 255
- [28] Lera, F., Fauliun J., Sanchez M., and Calleja-Blanco (2013). Analysis of the Willingness to Pay to Reduce Environmental Impacted from Road Transportation. Available at <http://www.orlabanalytics.ca>. Retrieved on 15th June, 2015.
- [29] Lewis, O. (1966). *La Vida: a Puerto Rican Family in the Culture of Poverty*. New York: Random House, p. 289.
- [30] Lewis O. (1966b). The Culture of Poverty. *Scientific American*, 215: 19 - 25.
- [31] Lewis O. (1967). The Children of Sanchez - Autobiography of a Mexican family. *Current Anthropology*, 8: 480 - 500.
- [32] Lewis, O. (1969). *A Death in the Sanchez Family*. New York: Random House, p. 190-192.
- [33] Lyson, T. A., and Falk, W. W. (1992). *Forgotten Places: Uneven Development and Underclass in Rural America*. Lawrence: University of Kansas Press, p. 299
- [34] Maslow, A. H. (1943). A Theory of Human Motivation. *Psychological Review*, 50 (4) 370 - 396.
- [35] Moreno-Torres, I. (2011), Generic Drugs in Spain: Price Competition Versus Moral hazard in Document De Trebal. www.xreap.cat. Retrieved on 15th August, 2014.
- [36] Morrill, R. L. and Wohlenberg, E. H. (1971). *The Geography of Poverty*. New York: McGraw Hill, p. 564.
- [37] Myrdal, G. (1957). *Economic Theory and Underdeveloped Regions*. London: Gerald Duckworth and Co., p. 323.
- [38] National Bureau of Statistics (2006). *Annual Abstract of Statistics*, p. 290.

- [39] National Bureau of Statistics (2007). *General Household Survey Report, 1995 - 2005*, p. 21
- [40] National Bureau of Statistics (2010). *Nigeria Poverty Profile 2010*. Available at www.nigerianstat.org.ng. Retrieved on 8th July, 2014.
- [41] National Bureau of Statistics (2012). Harmonized Nigerian Living Standard Survey, 2009/2010. *Abstracts of Statistics*. Abuja, Nigeria, p. 8 -11.
- [42] National Bureau of Statistics (2015). Nigeria Gross Domestic Product Report, Qtr 2, 2015. Available at www.nigerianstat.org.ng.
- [43] Ojide, M. G., Onyukwu, O. E., and Ikpeze, N. I. (2015), Households Perception of Factors Influencing Agricultural Productivity in Ogoni Community: An Ordinal Logit Approach. *Asian Journal of Economics and Empirical Research*, 2 (2):76-82.
- [44] Orebiyi, Paul A. (2016). *Socioeconomic Impact of Oil Production on Selected Niger Delta Communities*. Being PhD Thesis submitted to the University of Uyo, October 2016.
- [45] Rostow, W. W. (1960). The Five Stages of Growth - A Summary. *The Stages of Economic Growth: A Non-Communist Manifesto*. Cambridge: Cambridge University Press, p. 416.
- [46] Rostow, W. W. (1962). *The Stages of Economic Growth*. London: Cambridge University Press, p 359.
- [47] Rural Sociological Society Task Force on Persistent Poverty (1990). *Persistent Poverty in Rural America*. Boulder: Westview Press. p. 71 -74.
- [48] Ryan, W. (1976). *Blaming the Victim*. New York: Vintage, p. 220.
- [49] Snow, D. and Benford, R. (1992). Master Frames and Cycles of Protest. in *Frontiers in Social Movement Theory*, edited by Aldon Morris and Carol Mueller. New Haven, Conn.: Yale University Press. p. 355.
- [50] Stigler, S. M. (1986). *The History of Statistics: The Measurement of Uncertainty before 1900*. Cambridge: Belknap Press of Harvard University Press, p. 431.
- [51] Swidler, A. (1986). Culture in Action: Symbols and Strategies. *American Sociological Review*, 51:273-286.
- [52] Thomas, S. and Canagarajah, S. (2002). *Poverty in a Wealthy Economy: The Case of Nigeria* IMF Working Papers. WP/02/112.
- [53] Tobin, J. (1994). Poverty in Relation to Macroeconomic Trends, Cycles, Policies. In: Danzinder, S. H., Sandefur, G. D. and Weinberg, D. H. (eds), *Confronting Poverty: Prescriptions for Change*. Cambridge: Harvard University Press, p. 89 - 98.
- [54] United Nations Environmental Programme – UNEP (2011). Environmental Assessment of Ogoni land. UNEP, Nairobi, Kenya. Available at <http://www.unep.org>. Retrieved on 8th February. 2016.
- [55] Wang, Y., Wang, T., Zhang, J. H. and Qin, X. (2011). Effects of Early Serum Glucose Levels on Prognosis of Patients with Acute Intracerebral Haemorrhage. *Intracerebral Haemorrhage Research*, Acta Neurochirurgica Supplementum, 111: 393 - 397.
- [56] Wilson, W. J. (1987). *The Truly Disadvantaged: The Inner City, the Underclass and Public Policy*. Chicago: University of Chicago Press, p. 389.
- [57] Wilson, William Julius (1996). *When Work Disappears: The World of the New Urban Poor*. New York: Random House, p. 431.
- [58] World Bank. (2000). *World Development Report 2000/2001: Attacking Poverty*. New York: Oxford University Press. Available at <http://www.worldbank.org/poverty/health/data/index.htm>. Retrieved on 5th May, 2015.