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# **Economic Growth, Employment Generation and Poverty Reduction in Nigeria**

**Ade S. Olomola, S. O. Akande, A. O. Ogunwale and O. O. Ogundele<sup>1</sup>**

## ***Abstract***

The interconnectivity among economic growth, employment and poverty reduction is an organic one such that the evolution of economic growth is intimately tied to the evolution of employment generation and poverty reduction. Imbalances in macro-economic policies and poor implementation could result in unemployment thereby exacerbating inequality and poverty. The methodology of the study is basically a macro level analysis of how economic growth could contribute to poverty reduction through increases in employment in higher productivity sectors/occupations and a rise in wages. It employs intensity of growth as measured by the GDP elasticity of employment. The technique further involves a macroeconomic analysis of the linkage between the incidence of poverty and employment intensity of growth in Nigeria. The study found among other things that poverty has risen since the resumption of growth in Nigeria. Although there seems to be some decline in relative poverty in recent past, the actual number of people in poverty continues to rise considerably. Moreover, the analysis shows that inequality in income distribution is widening and varies between female- and male-headed households. The developments that are found to make a positive contribution to poverty reduction include structural transformation of employment towards manufacturing and other non-farm sectors, education, and lowering of the dependency burden (i.e., increase in labour force participation). Thus, efforts to reduce poverty will have to focus on the informal sector, acknowledging this sector as not a problem for development, but rather as a starting point for achieving development and poverty reduction.

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## **INTRODUCTION**

### **I.1 Research issues**

The interconnectivity among economic growth, employment and poverty reduction is an organic one such that the evolution of economic growth is intimately tied to the evolution of employment generation and poverty reduction. In other words, promotion of economic growth constitutes an important vehicle for the improvement of the living standard of the populace at all levels. Meanwhile, available evidence, particularly in most developing countries, suggests that although economic growth constitutes a necessary condition for employment generation and poverty reduction, it is not a sufficient condition as there are possible trades-offs and conflicts between growth and redistribution of wealth in the country.

Since economic growth is not a sufficient condition for poverty reduction, it stands to reason that economic growth would have to be combined with some other socio-economic strategies encompassing social policies and programmes designed to effectively reach the poor and the most vulnerable groups in the society. The extent to which economic growth raises the position of the economically dependent poor is entirely contingent upon the operation of traditional and other safety net provisions and more widely, by constructive changes in the distribution of income.

In society where income disparities are continuously widening; where governments are unable or unwilling to make adequate social provisions; and where the efficacy of traditional sharing mechanisms are diminishing, the dependent poor is highly vulnerable. However, in a country with an episode of economic growth, the sources of income of the economically active poor would not necessarily be raised as everything would be a function of the growth path and the extent to which such an economic growth is pro-poor. As is generally claimed, there is a strong association between growth and poverty reduction. Whether growth translates into significant poverty reduction depends upon numerous factors such as inflation, external shocks, unemployment, minimum wages, social programmes etc. One of the most important factors influenced by all others is the degree of inequality in the country. Studies have found that poverty is more responsive to growth when the distribution of income and assets is more equal. In this context, a more equal society will grow faster. The major task in this regard, therefore, is to identify the various sources of income of the economically active poor and examine the extent to which such sources are expected to be improved by social policies in the country.

### **Rationale for the study**

Many studies (Demery and Squire, 1996; CBN, 1999, Ali and Thorbecke, 2000) on the Nigerian situation have presented a classic case of the tendency of economic growth process to accentuate inequality or exterminate certain groups in the population. This can be regarded as the paradox of growth without poverty reduction. However, none of these studies was able to trace the linkages between economic growth and employment generation or the paradox of growth without reduction in unemployment. Therefore what

will appear as the major contribution of this study to poverty literature in Nigeria is to trace the linkage between what is now referred to as pro-poor growth and the labour market in Nigeria.

While economic growth has been positive particularly in the recent times in Nigeria, unemployment continues to soar and the poverty situation in the country continues to intensify. The implication of this on the Nigerian economy has been a range of macroeconomic and sectoral policies reform implemented particularly since 2003 under the rubric of National Economic Empowerment Development Strategies (NEEDS) such as trade reform, reduction of fiscal deficits and reorientation of public expenditure, aimed at the reinforcement of a modicum of economic growth but on the contrary have been accompanied by deepening unemployment and poverty in the country.

The main research issue that emanates from the foregoing paradox is how to make macro-economic policies to induce economic growth that is more unemployment reducing and at the same time pro-poor in nature. In other words, what are the configurations of policy adjustment that can deliver equity with economic growth over the medium term? The spectrum of macroeconomic issues under this approach includes the distributional impact of tax changes, privatization in the absence of a regulatory framework that incorporates the interest of the poor and the possible poverty-creating effects of some liberalization measures such as subsidy. There are other areas of anti-poor bias in government spending, such as neglect of rural infrastructure and labour-intensive infrastructure development strategy. It also includes schemes to improve the poor diverse assets; improving education health; property rights and access to land; access to credit and stimulating job creation and providing support for urban informal sector operatives.

The Nigerian evidence repudiates the more growth, less poverty dictum. According to Demery and Squire (1996), poverty elasticities are lower in Africa than elsewhere due to structural problems, which may impede the spread of the benefits of economic growth and possible exclusion of some parts of the population from such economic growth process. In fact, Demery and Squire (1996) found that Kenya, Nigeria and Tanzania were all countries, which in various periods during the 1980s and early 1990s, enjoyed periods of economic growth whose poverty-reducing effects were partially undone by rising inequalities. This provides a context for this study. The overarching goal of macro-economic policies is to engender economic growth. A second order concern should be how to ensure that this growth is equitable and translates into unemployment and poverty reduction. The complementarities between reducing inequalities, reducing unemployment and increasing growth, therefore, offers potentially interesting policy lessons for Nigeria and justifies an exploration of the association between macroeconomic policy and poverty on one hand and unemployment on the other. Hopefully, therefore, this study would be able to identify the plethora of macroeconomic instruments that will be able to deliver economic growth, reduce unemployment and guarantee equity.

Given this foregoing, efforts will be made to explore the bi-directional relationship between macroeconomic variable and poverty on one hand and between macro-economic

variables and unemployment on the other. Therefore, in order to achieve this goal, effort will be made to achieve the followings.

1. To demonstrate the relationship between income growth, inequality and poverty in Nigeria using Sharpley decomposition method.
2. To examine the determinants of spatial income inequality across the six geopolitical zones in Nigeria.
3. To establish the linkage between employment and poverty in Nigeria.

## **CONCEPTUAL FRAMEWORK AND LITERATURE REVIEW**

### **2.1 Conceptual Framework**

It is commonly acknowledged that productive employment constitutes the main link between economic growth and poverty. In other words high economic growth which leads to a sustained increase in productive capacity will generate employment opportunities with rising productivity allowing the unemployed and/or poor to increase their incomes either in existing occupations or shift to new occupations involving higher level skills. In turn, reduced poverty will increase the productive capacity of the future workforce through increased education and skills formation, creating the necessary conditions for achieving higher levels of growth. Analysis of the relationship between economic growth and poverty reduction has gone through various phases in the literature on development. For example, an important premise of the very early theories of development was that the benefits of economic growth would trickle down to the poor. Since then, questions have been raised on the assumption of an automatic link between growth and poverty reduction, and attempts have been made to understand the mechanisms through which the benefits of growth may get transmitted to the poor. Some of the latter categories of studies do also refer to the role of employment; and yet, a rigorous analysis of the role of employment in the linkage between economic growth and poverty reduction appears to be missing.

Following on the Kuznets (1955) hypothesis of an inverted U shape of the relationship between economic growth and income inequality, Adelman and Morris (1973) was one of the earlier studies to question the automaticity of the relationship between economic growth and benefits to the poor. And then came the influential contribution by Chenery, et al. (1974), focusing on the importance of redistribution alongside economic growth.

Economic growth, however, came back to fashion once there were studies casting doubt on the suggestion that higher growth could be associated with increased poverty, and re-asserting that growth, almost always, reduced poverty.<sup>2</sup> The decade of the 1980s witnessed renewed emphasis (especially on the part of the international development partners) on economic growth; but studies on growth contributing to poverty reduction again came in good numbers during recent years. While growth continued to occupy the centre stage in development literature, there have been studies, especially in recent years, arguing that although growth is necessary for poverty reduction, it is not sufficient. Some

studies point out that the pattern of growth is important from the point of view of its effectiveness in reducing poverty (World Bank, 1990; Lipton and Ravallion, 1995; Squire, 1993; McKay, 1997; DFID, 1997; Groudie and Ladd 1999).

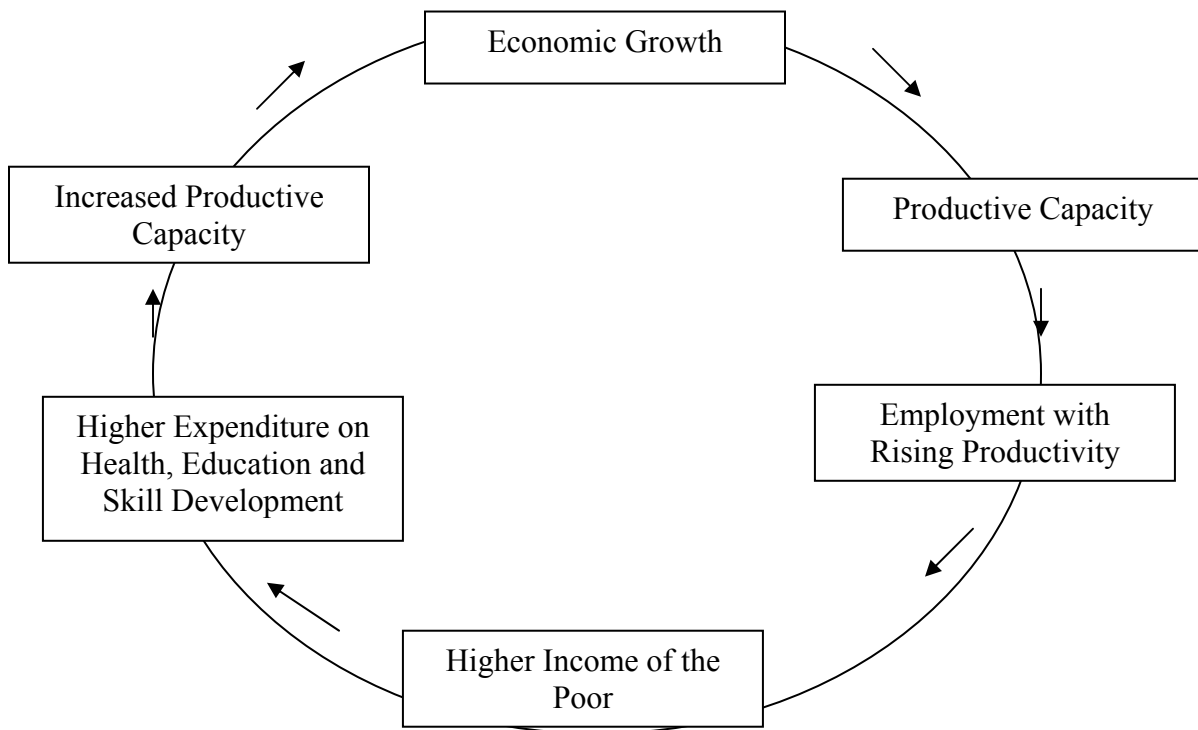
Conceptually, the linkage between output growth, employment and poverty can be analyzed at both macro and micro levels. At the macro level, the linkage between poverty in its income dimension and output growth can be conceptualized in terms of the average productivity of the employed work force which in turn gets reflected in low levels of real wages and low levels of earnings in self-employment. At the micro level of a household, the same linkage between poverty and employment operates through the type and low productivity of economic activities in which the earning members of a household are engaged, the low level of human capital of the members of the workforce, the dependency burden that limits participation in the workforce, and the mere availability of remunerative employment. A low average productivity of the work force can be due to the deficiency of capital relative to labour and the use of backward technology. When high rates of economic growth lead to sustained increase in productive capacity, employment opportunities with rising productivity are generated. This in turn allows for a progressive absorption and integration of the unemployed and the underemployed into expanding economic activities with higher levels of productivity. In the process, the poor may be able to achieve higher productivity and increase their incomes in their existing occupations, or shift to new occupations involving higher level skills and/or better technology. The results of the process described above could be reflected in: (i) improved productivity of various sectors and occupations, (ii) a shift in the structure of employment towards occupations with higher levels of productivity, and (iii) increases in real wages, earnings from self-employment, and earnings from wage employment.

Higher levels of earnings resulting from the process mentioned above would enable workers to spend more on education and skill formation of their children, thus raising the productive capacity of the future workforce, and creating necessary conditions for achieving higher levels of economic growth. The process would thus complete the virtuous circle of economic growth leading to poverty reduction via growth of employment with rising productivity, and reduced poverty creating the possibility of further increases in productivity and higher rates of economic growth (as illustrated in figure 1 below). The kind of growth with such a virtuous circle in operation can be termed as pro-poor growth.

Indeed, the conceptual framework outlined above for analyzing the linkage between economic growth, employment and poverty basically follows a demand-supply approach. The variables that are expected to influence incomes of the poor from the demand side include employment intensity of growth, shifts in the employment structure towards higher productivity sectors, technology, creation of assets for the poor, etc. From the supply side, an important factor is the ability of the poor to integrate into the process of economic growth and get access to the jobs that are created. Levels of education and skills of the workforce are amongst the key variables that determine the ability of the poor to integrate into and benefit from the growth process. It is commonly acknowledged that productive employment constitutes the main link between economic growth and

poverty. In other words high economic growth which leads to a sustained increase in productive capacity will generate employment opportunities with rising productivity allowing the unemployed and/or poor to increase their incomes either in existing occupations or shift to new occupations involving higher level skills. In turn, reduced poverty will increase the productive capacity of the future workforce through increased education and skills formation, creating the necessary conditions for achieving higher levels of economic growth, completing the virtuous circle as illustrated in figure 1 above.

**Figure 1: Virtuous Circle of Links between Growth, Employment and Poverty Reduction**



### **A Review of Empirical Findings on Inequality and Poverty**

Imbalances in macro-economic policies and poor implementation could result from the poor and vulnerable to the asset-rich, thereby exacerbating inequality and poverty (Buhi, 2001). Poverty can be decomposed into mean income and inequality component. Any of the two components that have higher contribution to poverty in a particular region is expected to attract policy attention in the short run in order to combat poverty in that region. Inequality decomposition is, therefore, an effective tool in positive analysis of inequality. This is because it allows useful depictions of patterns that can be a first step in identifying the approximate causes of inequality. Such inequality decomposition also tends to underpin policy analysis. This section, therefore, present a review of few empirical findings on inequality and poverty both in Nigeria and elsewhere.



Shorrocks (1983) used Gini coefficient to decompose income inequality using US panel data consisting of 2755 households observed for 1967-76. He examined the relative influence of income components and evaluates the performance of different decomposition rules. The result showed a fair but far from identical degree of correspondence between the inequality contribution and income share of each factor component. Labour income of household head and spouse direct taxes were the main positive and negative factors respectively, contributing to the inequality of the total net family incomes in the US. Cowell and Jenkins (1995) applied different decomposition techniques to assess the quantitative importance of principal population (sex, race, and age of head) and labour market (employment status) characteristics in explaining inequality. Results were robust under alternatives methods of decomposition and the within-group component was higher than between-group component.

Kakwani and Neri (2006) examined the linkages between pro-poor growth, social programmes and labour market using 10 years Brazilian annual household data from 1995-2004. The result shows that the labour earnings of the upper segments of Brazilian society were the epicenter of the economic crisis. Although per capita income fell during the 1995-2004 period, it cannot be referred to as a 'poverty' crisis. While labour markets were quite adversely affected, incomes derived from social security and other government transfer played a crucial role in cushioning the consequences of macro shocks observed, especially among the poorest segments of Brazilian society.

Shorrocks and Kolenikov (2003) also applied Shapley method which is based on the value in cooperative game theory, to analyze the deviation in regional poverty levels from the all-Russia average attributed to three proximate sources; mean income per capita, inequality, and local prices. Contrary to expectation, regional poverty variations turn out to be due more to differences in inequality across regions than to differences in real income per capita. However, when real income per capita is split into nominal income and price components, differences in nominal incomes emerge as more important than either inequality or price effects for the majority of regions.

A few numbers of studies on inequality and poverty in Nigeria include Aigbokhan (2000) who analyzed growth, poverty and inequality in Nigeria over the 12-year period (1985-1992). His findings suggested that there was evidence of increased poverty, inequality and polarization in distribution. While polarization in income distribution increased between 1985 and 1992, it decreased slightly between 1992 and 1996. there was also evidence that poverty and inequality were indeed more pronounced among male-headed households, and in rural areas and in the northern geo-political zones. He suggested that policies should be conscious of the need to ensure the use of the main assets owned by the poor.

Alayande (2003) analyzed the patterns of inequality in Nigeria using the regression-based approach to decompose inequality by income sources using the Gini index. The result showed that geography or space is an important factor explaining inequality in Nigeria. The results also showed that the sector of residence alone accounted for the largest source

of inequality in Nigeria. The study showed that post secondary education has significant reduction effect on income inequality. However, factors such as sex, age etc. have minimal effects on income inequality in Nigeria. He recommended that any poverty alleviation and income distribution programme should focus on geographical spread of such programme in order to achieve meaningful results. Similarly, Awoyemi (2004) employed a regression-based decomposition method to the study of income distribution using the 1996 National Consumption Survey (NCS) data. The Gini coefficient was used as a measure of inequality.

The findings attributed the highest share of the income inequality to household size. Shapely decomposition value of Gini showed that education, age and productive hours committed to primary occupation will impact positively on the level of income. The result further emphasized the contribution of locational factors to total income inequality in Nigeria. Oyekale *et al.* (2006) measured the sources of income inequality in rural and urban Nigeria using 2004 National Living Standard Survey (NLSS) data. The results showed that income inequality was higher in rural than urban areas. Employment income was found to be income inequality increasing but reducing in agricultural income sources. Using the Modurch and Sicular decomposition method, they found that urbanization, residence in Southwest, household size, household head's formal education, non-farm-income, formal and informal sources of credit were among factors that increased inequality. Using Shapley decomposition method, they concluded that income redistribution and income growth contributed significantly to change between 1998 and 2004. While a few of the Nigerian studies have dealt extensively with the issue of poverty and income inequality and some of the major determinants, none of them was able to provide any linkage with the employment situation in Nigeria. Therefore, the conceptual framework outlined in this study provided the basis for analyzing the linkage between economic growth, employment and poverty under a demand-supply approach.

### ***A Review of Poverty Policies and Programmes in Nigeria***

Generally, Nigeria emerged from colonial status as a poor country. Her situation is weakened by poverty, disease and ignorance. Poverty in Nigeria is multi-faceted, multi-dimensional and multi-disciplinary. The Nigerian economy, until recently, has been characterized by the paradox of growth without poverty reduction and the trickle down effect of growth on the poor, slow response of government to the endemic and persistent problem of poverty and poor governance. Thus far, this characterization of the economy requires articulation for the purpose of designing programmes that are truly poverty reducing.

Publications and several studies have provided graphical details of the escalating poverty situation in Nigeria between the period of 1980 and 2004. Several reports have revealed marked deterioration in the quality of life of Nigerians over the years since independence, resulting in steady increase in the number of Nigerians caught below the poverty line and the fact that higher concentration of the poor live in the rural areas and the urban fringes.

Poverty statistics showed that poverty level declined from 46.3 per cent in 1985 to 42.7 per cent in 1992, it rose sharply to 65.8 per cent of the population in 1996 (NBS, 1998)

before it declined again to 54.4 in 2004. However, in absolute terms the population of the poor Nigerians increased four-fold between 1980 and 2004.

Table 2.1: Poverty Head Count by Year

Year	Poverty Incidence (%)	Est. Pop (Million)	Pop. In Poverty (Million)
1980	28.1	65	17.7
1985	46.3	75	34.7
1992	42.7	91.5	39.2
1996	65.6	102.3	67.1
2004	54.4	126.3	68.70

Source: National Bureau of Statistics (NBS), 2006

The moderately poor rose from 28.9 per cent in 1992 to 32.4 per cent in 2004, while the percentage of the core poor more than tripled from 13.9 per cent in 1992 to 43.3 per cent in 2006.

Table 2.2: The Poor and the Core Poor by Year

Year	Non Poor (%)	Mod. Poor (%)	Core Poor (%)
1980	72.8	21.0	6.2
1985	53.7	34.2	12.1
1992	57.3	28.9	13.9
1996	34.4	36.3	29.3
2004	22.0	32.4	43.3

Source: National Bureau of Statistics (NBS), 2006

In terms of Physical Quality of Life Index (PQLI), Nigeria scored 38 per cent in 1991. The Human Development Index (HDI) was 0.391 in 1998 ranking the country as 142 out of the 174 countries surveyed. In the year 2000, the HDI score for Nigeria was 0.439 which ranked Nigeria in the 151<sup>st</sup> position among 174 countries (UNDP 2000). In 2002, the HDI score was 0.466 which categorized Nigeria in the Low Human Development Countries) in the 151<sup>st</sup> ranking among 177 countries (UNDP 2004). Further characterization of poverty showed that majority of the poor are resident in the rural areas

Table 2.3: Poverty Trends by Sector

Year	Urban (%)	Rural (%)
1980	17.2	28.3
1985	37.8	51.4
1992	37.5	46.0
1996	58.2	69.8
2004	43.2	63.3

Source: National Bureau of Statistics (NBS) Poverty Profile in Nigeria, 2006

In 1980, 1985, 1992 and 1996 and 2004, 17.2, 37.8, 37.5 and 58.2 and 43.2 per cent of the poor were in the urban areas respectively, while the corresponding figures for the rural areas were 28.3, 51.4, 46.0 and 68.8 and 63.3 per cent. In Nigeria, poverty is also a rural phenomenon where agricultural activities are concentrated. According to Poverty and Agricultural Sector in Nigeria Report (NBS, 2006), in 1985, 51.4 per cent of the population in the rural areas was poor. It declined to 46.0 per cent in 1992 and thereafter increased to 69.8 per cent in 1996 before declining to 63.3 per cent in 2004. On the other hand, the proportion of the poor in the urban areas was 37.8 per cent in 1985, 37.5 per cent in 1992 and grew to 58.2 per cent in 1996 before declining to 43.2 in 2004. In Nigeria, poverty situation was worsened by the rapid annual population growth rate with the attendant feminization of gender. In general, Government has not been unaware of the poverty situation in Nigeria. In spite of all these efforts poverty is still on the increase as observed in the period 1985-2004. However, the government past efforts can be categorized into three main areas including the efforts of the present civilian administration as articulated below.

### National Poverty Trends

Based on the underlying data from the NBS, the national poverty rates computed for the five different years are as follows: 28.1percent (1980), 46.3 per cent (1985), 42.76 per cent (1992), 65.6 per cent (1996) and 54.4 per cent for 2004. Poverty incidence in the country recorded increases between the period 1980 and 1985 and between 1992 and 1996. The results also show appreciable decrease in poverty rates between 1985 and 1992 and between 1996 and 2004. Even with the drop in poverty rates, the population in poverty has maintained a steady increase from 17.7 million in 1980 to 68.7 million in 2004 (NBS, 2004). The data below illustrates the trends in poverty during this period.

**Table 2.4. Spread and Trend in Poverty Levels**

<b>Levels</b>	<b>1980</b>	<b>1985</b>	<b>1992</b>	<b>1996</b>	<b>2004</b>
<b>NATIONAL</b>	<b>27.2</b>	<b>46.3</b>	<b>42.7</b>	<b>65.6</b>	<b>54.4</b>
Urban	17.2	37.8	37.5	58.2	43.2
Rural	28.3	51.4	46.0	69.3	63.3
<b>ZONE</b>					
South- South	13.2	45.7	40.8	58.2	35.1
South East	12.9	30.4	41.0	53.5	26.7
South West	13.4	38.6	43.1	60.9	43.0
North Central	32.2	50.8	46.0	64.7	67.0
North East	35.6	54.9	54.0	70.1	72.2
North West	37.7	52.1	36.5	77.2	71.2

### Poverty Incidence by Activities

The relative poverty incidence by occupation of household heads presented in table 2.4 showed explicitly the trend in prevalent of poverty in the agricultural sector. Though the incidence declined between 1996 and 2004, in absolute term, the value is still very high and far above the national average of poverty headcount for the country. For the rest of the activities, the poverty head count fell below the national average. Households with their head engaged in professional and technical activities and those in clerical and related activities recorded the least poverty head count of 34.2 and 39.2 respectively.

Table 2.5: Relative Poverty Incidence by Occupation of Household Heads

Activities	Poverty Head Count				
	1980	1985	1992	1996	2004
Professional & Technical	17.3	35.6	35.7	51.8	34.2
Administration	45.0	25.3	22.3	33.5	45.3
Clerical & related	10.0	29.1	34.4	60.1	39.2
Sales Workers	15.0	36.6	33.5	56.7	44.2
Service Industry	21.3	38.0	38.2	71.4	43.0
Agricultural & Forestry	31.5	53.5	47.9	71.0	67.0
Production & Transport	23.2	46.6	40.8	65.8	42.5
Manufacturing & Processing	12.4	31.7	33.2	49.4	44.2
Others	1.5	36.8	42.8	61.2	49.1
Student & Apprentices	15.6	40.5	41.8	52.4	41.6
<b>Average</b>	<b>27.2</b>	<b>46.3</b>	<b>42.7</b>	<b>65.6</b>	<b>54.4</b>

Source: NCS 1980, 1985, 1992, 1996, 2004

### Poverty and Agriculture Linkages in Nigeria

Table 2.6 shows that poor households are more in agricultural occupation (62 per cent) than in non-agricultural occupation (54 per cent). The gap in poverty levels of farm households and non-farming households was at 9 per cent. The table also indicates that about 56 per cent of farmers living in the urban areas were poor, while about 63 per cent of those in the rural areas were poor.

Table 2.6: Agriculture Population by Sector and Relative Poverty Incidence

Sector	Poverty Classification			Total
	Core Poor	Moderately Poor	Non- Poor	
Urban	18.03	38.06	43.91	100.00
Rural	26.27	37.35	36.38	100.00
<b>Total</b>	<b>25.15</b>	<b>37.45</b>	<b>37.40</b>	<b>100.00</b>

Source: Underlying Data from NBS, 2004

Table 2.7: Agriculture Population by Zone and Relative Incidence

<b>Zone</b>	<b>Poverty Classification</b>			<b>Total</b>
	<b>Core Poor</b>	<b>Moderately Poor</b>	<b>Non-Poor</b>	
South South	9.65	46.61	43.73	100.00
South East	5.90	31.82	62.28	100.00
South West	7.39	31.78	60.83	100.00
North Central	29.01	33.96	37.03	100.00
North East	34.33	41.78	23.90	100.00
North West	42.54	36.68	20.79	100.00
<b>Total</b>	<b>25.15</b>	<b>37.45</b>	<b>37.40</b>	<b>100.00</b>

**Source:** Underlying Data from (NBS), 2004

Table 2.7 shows that there were more poor farmers in the northern zones than in the southern zones. While the south east had the lowest proportion of farmers (37 per cent), the northwest had the highest proportion (96 per cent). The moderately poor were evenly distributed among the zones, while the southern zones had the lowest core poor. The distribution of agricultural population in poverty is given in Table 2.8

Table 2.8: Agriculture Population by Sex and Relative Incidence

<b>Sector</b>	<b>Poverty Classification</b>			<b>Total</b>
	<b>Core Poor</b>	<b>Moderately Poor</b>	<b>Non- Poor</b>	
Male	29.21	37.30	33.49	100.00
Female	17.68	37.71	44.61	100.00
<b>Total</b>	<b>25.15</b>	<b>37.45</b>	<b>37.40</b>	<b>100.00</b>

**Source:** Underlying Data from (NBS), 2004

### Analysis of Growth, Poverty and Employment Linkages

As seen in the previous sections, the initial years following the introduction of the structural adjustment programme in Nigeria the country was characterised by enormous economic and social costs in terms of severe declines in output and rising levels of unemployment and poverty in the country. In addition, the country experienced increasing income inequality and falling real wages in manufacturing. However, more than a decade after the start of the structural adjustment programme, economic growth has generally resumed across the geo-political regions although it remains low and unstable in some of the states of federation. According to 'trickle-down' economics, increased economic growth should benefit the poorest sections of society by leading to a fall in poverty incidence.

This section examines this theory in the case of the six geo-political zones by analysing the linkages between growth, employment and poverty. As a starting point, a conclusion of the trends in poverty, unemployment and wages, as described in the previous sections, reveals that the country, poverty has risen since the resumption of growth. In addition to an increase in poverty, the country also experienced a fall in the unemployment rate, whereas a drop in poverty incidence has occurred in spite of the rise in unemployment. The lack, not just of reliable data, but of data in general, prevents any definite assertion with regard to the poverty trend, yet on the basis of other information such as inequality levels, the human development index and GDP per capita, the assumption that poverty has risen during the present civilian administration is not entirely unjustified.

According to the official data, unemployment in Nigeria has risen after 1997, yet the lack of wage data makes it difficult to assess what has happened to wages since the resumption of growth, although rising wages seems to be a reasonable guess based on the trends in previous years. With rising poverty in spite of relatively strong and stable economic growth since 1996, simultaneously with falling unemployment levels and rising wages the country is faced with a serious income inequality.

The role of structural shifts in explaining specific trends in growth, poverty, inequality, unemployment and wages was discussed earlier in this paper. In fact such structural shifts in the economy go a long way in explaining such trends in all of the six geo-political zones. The reason for this stems from one of the most common assumptions in economics: namely that during the process of economic growth, labour moves out of the low-productivity agricultural sector into the higher-productivity industrial and services sectors. As a result workers' incomes improve along with their welfare reducing the overall incidence of poverty as well as the risk of falling into poverty. However as shall be discussed in this section, such a straightforward shift in labour related to resumption in growth, does certainly not characterise the general situation in Nigeria.

In Nigeria, the drastic decline in output led to a significant reduction in the contribution of industry to overall GDP and an equally steep increase in the contribution of agriculture, in particular during the initial years of the civilian administration. In addition to altering the composition of GDP, the structural shift from an emphasis on agriculture to industry, also changed the employment structure with displaced industrial workers being absorbed in agriculture. This is a natural response of an economy facing declining growth rates and as discussed earlier, the fall in industrial employment explains the high levels of urban poverty and poverty in general. However, has the reverse response also happened? Since the resumption of growth in 1994 overall poverty has indeed fallen, but only slightly, in fact between 1996 and 1999 when the economy grew by about 5% per annum, poverty merely fell by 1%. When putting together the figures on the sectoral composition of GDP and employment, one will note that although the GDP share of agriculture has fallen since 1994 the percentage of the population employed in agricultural activities has risen. This implies that the sector has experienced a decline in the productivity of labour (underemployment) leading to falling incomes and rising levels of poverty. Moreover, in industry the share of employment has continued to fall, implying that the process of economic growth has *not* led to a shift in labour from low productivity sectors to more productive sectors.

The output decline led to a significant fall both in the industrial and the agricultural composition of GDP and by 1995 the employment share of both sectors fell to about half of the 1990 level, leading to a rise in open unemployment reaching a high of 13.7% in 1999 (according to unofficial sources) and a consequent rise in poverty. In addition to the rise in open unemployment, it is believed that a substantial amount of workers sought employment in the 'shadow economy', mainly in services related activities. As seen earlier, it is estimated that the informal sector employs 30% of the total workforce (UNDP, 2000: 7).

This would explain the significant rise in the contribution of services to overall GDP, yet unfortunately a full data set on the employment share of services is not available – probably due to the highly informal nature of the sector. However, it is safe to assume that the decline in the economy led to displaced labour (both from the high productivity industrial sector and the low productivity agricultural sector) being absorbed into the informal sector.

Economic growth increased relatively at the resumption of civilian regime in 1999 but, it didn't settle at a reasonable level until 2004 and has since increased substantially, due mainly to the strongly developed industrial sector, in particular the oil sub-sector. In spite of such positive developments, one should keep in mind that the industrial sector's share in employment is still relatively low (at about 50% of the 1990 level), implying that un- and underemployment remain prevalent features of Nigeria's labour market.

As in all the other countries, the 1990's was characterized by falling outputs, with the share of industry falling to a low of 50% of its 1990 level in 1996 and the employment share of the sector falling continuously during the 1990's. Although a portion of the labour shed from the industrial sector was absorbed in agricultural activities as indicated by the rise both in the agricultural share of GDP and employment, unemployment levels rose and poverty increased. Thus with respect to structural shifts, Nigeria's experience is similar to that of most developing African countries, yet in the latter, poverty is more prevalent in urban areas whereas in the former poverty is more widespread in rural areas.

This can be attributed partly to rural urban migration into cities in Nigeria. In 1996, economic growth in Nigeria declined arising from the long military rule but the moment we move into the civilian administration the economy started to pick up again. However in terms of poverty and inequality, the effect of this increased growth seems to have been delayed (in spite of rising wages and falling unemployment) with the former falling slightly since 1999 and the latter since 2000. As noted before, poverty is particularly severe in rural areas, the employment share of agriculture has continued to rise this is not an indication of increased productive employment (this is also revealed in the falling output share of agriculture). In fact the increased share of agricultural employment (contributing to the fall in overall unemployment) seems to be mainly a reflection of rising underemployment in this sector.

GDP declined for nearly a decade from 1990 to 1999 due to declining outputs in both the agricultural and the industrial sector and although the share of employment in agriculture rose during the first half of the 1990's, this was a sign of labour hoarding rather than growth of the sector. Although the drastic decline in output is neither reflected in increasing poverty nor in rising unemployment levels, this should be considered a weakness of the data rather than the reality. In support of this, one needs only observe the inequality and wage trends, which both reflect a worsening of the human development situation in Nigeria. The share of services in the economy did rise continuously during the 1990's, yet again this can be attributed mainly to a rise in informal sector activities. The recovery in growth since 2000 can be partly attributed to the relative success of the agricultural sector reforms undertaken in the late 1990's. The small private farms created



by these reforms are playing an important role in absorbing a significant amount of the displaced industrial workers from collapsing industries. However, the revival in growth is so recent that one may wonder whether growth will remain positive and stable from now on, yet with increasing growth rates in 2001 and 2002, Nigeria's economy definitely appears to be on the right track. Indeed both unemployment and poverty levels have fallen since 2000, whilst manufacturing wage levels have risen since 1999.

Due partly to its tradition as an agricultural society, the decline in GDP led to an enormous shift in labour from industrial to agricultural activities causing rising levels of underemployment. Although it is safe to assume that the available unemployment data does not provide a full picture of the labour market situation, the real misery faced by workers who remained in manufacturing activities is reflected in the severe fall in wage levels to under 10% of the 1990 level in 1995. Since the resumption in growth in 2001 (which is mainly due to increased informal sector activities), the share of employment in agriculture has continued to rise, with the sector employing close to 60% of the total population, yet agricultural output has continued to fall, pointing to the tremendously low and falling level of productivity in the sector. Industrial output and employment has also continued to decline, thus it is no surprise that according to some estimates 96% of the population live below the provisional official minimum consumption basket (Falkingham, 2002: 11). In recent years GDP growth has been relatively strong, so it will be interesting to see what implications, if any, this will have for poverty, unemployment and wage levels.

The decline in output occurred both in the agricultural and industrial sector, although during the first half of the 1990's some of the labour displaced from industry was absorbed in the informal sector of the economy. Exactly what has happened to poverty and unemployment levels as a result of the transition process remains more or less guesswork, as such data is particularly scarce and in the case of the unemployment data, almost entirely unreliable. However, the available data on inequality and average wages, provides some indication of the situation, with the former showing a definite increase during the 1990's and the latter a year on- year fall from 1993 to 1999.

Since the resumption of growth in 2000, agricultural output appears to have risen slightly, whilst industrial output has continued to fall. Interestingly, with regards to sectoral employment the pattern appears to be the opposite, implying that the fall in industrial output is due to an increase in unproductive employment (or underemployment) in this sector. As for services, both output and employment appear to have risen in recent years, but this is most probably due to increasing activities in the informal service sector. Overall unemployment according to the official data, appears to have risen since the resumption of economic growth, and in combination with the rise in income inequality after 2000, one can only assume that poverty incidence has increased as well.

### **Pre and Structural Adjustment Period**

In the pre-adjustment period, activities include the provision of basic amenities such as social and economic infrastructure programmes to generate employment, enhance income earnings, increase productivity and those targeted at more equitable distribution of

income. Others include increased production and supply of food, increased economic activities. These programmes were aimed at meeting the needs of the poor.

The Structural Adjustment Programme stressed greater realization of the need for policies and programmes to alleviate poverty and provide safety nets for the poor. The programme, however, failed because it had no human face in its implementation and it did not emphasize on human development which thereby aggravated socio-economic problems of income inequality, unequal access to food, shelter, education, health and other necessities of life. It ended up aggravating poverty especially among the vulnerable. Government efforts then could be categorized into nine groups: These were Agricultural Sector Programmes; Health Sector Programmes; Nutrition-related Programme; Education Sector Programmes; Transport Sector Programmes; Housing Sector Programmes; Financial Sector Programmes; Manufacturing Sector Programmes and Cross-Cutting Programmes.

### **Post Adjustment till Date**

Consequent upon the experiences of the past, the civilian government which came into power in 1999 initiated a number of programmes and policies directed at reducing poverty. The first programme was the Poverty Alleviation Programme (PAP) which was targeted at correcting the deficiencies of the past efforts at alleviating poverty through the overall objective of providing direct jobs for 200,000 unemployed persons and hence stimulates production within a period of one year. This programme later metamorphosed into the Poverty Eradication Programme (PEP) because of the need to improve participatory approach for sustainability, for effective coordination at all levels of government and proper focusing of the programme. The core programmes of Poverty Eradication Programme were Youth Employment Scheme; Social Welfare Services Scheme; Rural Infrastructure Development Scheme and Natural Resource Development and Conservation Scheme.

The World Bank (2001/2002) later had to assist Nigeria in formulating poverty strategy programmes and policies through Interim Poverty Reduction Strategy Paper (IPRSP) with the aim of building on the gains of the earlier efforts on poverty programmes (PAP and PEP). In the face of the growing concern to sustain the gains of the poverty efforts, government came up with a comprehensive home-grown poverty reduction strategy known as **National Economic Empowerment and Development Strategy (NEEDS)** in 2004. The NEEDS also builds on the earlier two years' efforts to produce the interim PRSP. The NEEDS as conceptualized is a medium term strategy (2003-2007) which derives from the country's long term goals of poverty reduction, wealth creation, employment generation and value re-orientation. The NEEDS is a national coordinated framework of action in close collaboration with the state and local governments and other stakeholders. The equivalent of NEEDS at State and Local Government levels are State Economic Empowerment and Development Strategy (SEEDS) and Local Government Economic Empowerment and Development Strategy (LEEDS). The NEEDS, in collaboration with the SEEDS will mobilize the people around the core values, principles and programmes of the NEEDS and SEEDS. A coordinated implementation of both

programmes will reduce unemployment, reduce poverty and lay good foundation for sustained development.

The main strategies of NEEDS are anchored on a tripod: Empowering People (Social Charter or Human Development Agenda); Promoting Private Enterprise and Changing the Way the Government Does Its Work (Reform Government and Institutions). However, the social charter underpins the NEEDS programme. It is aimed at all aspects of the people's socio-economic life with the aim of reducing poverty and inequality. Despite her great natural wealth, Nigeria is still considered poor and social development is limited. If the present trends continue, the country is not likely to meet the Millennium Development Goals. Under NEEDS, reforms are ongoing in the key sectors of the economy with the objective of poverty reduction through anti-poverty programmes and policies. The positive effects of the reforms are gradually impacting on the people and efforts should therefore be continued for their sustainability and continuity. The findings of the Poverty Profile for Nigeria Report (2003/2004) from the Nigeria Living Standard Survey 2003/2004 showed the positive impact of the recent government anti-poverty reforms. The findings showed declining poverty rates compared with past figures. Nevertheless, anti-poverty efforts must be sustained and accelerated for their impact to be felt.

### Labour Market Trends

The previous section mentioned inequality as a factor determining the impact that economic growth would have on poverty. Labour market factors such as the sectoral composition of employment, unemployment and wage levels are also extremely important variables in determining the relationship between economic growth and poverty and more importantly in determining whether growth is 'pro-poor'. The present section examines the unemployment and wage trends in Nigeria and the following section will bring in sectoral employment in order to provide a full analysis of the growth, employment and poverty nexus.

Table 2.9. Real Growth Rate of Employment in Agriculture and Manufacture

YEAR	2000	2001	2002	2003	2004	2005
AGRIC	4.42	0.97	0.68	8.78	23.90	13.01
MANUF	-4.26	3.81	-2.93	5.13	2.24	-3.75

SOURCE; NBS 2006

Table 2.10: Total working population (,000)

	2001	2002	2003	2004	2005	2006
<b>Total working population</b>	43,600	44,800	46,800	47,810	49,550	52,000
Total salaried working population (wage Empl)	4,120	4,330	4,540	4,769	5,008	5,258
Of which Government salaried working population	2,730	2,870	2,990	3,159	3,325	3,400

Source: National Manpower Board /NISER, 2006

### **Unemployment Trends**

During the early stages of the transition process when GDP went into a precipitous decline, employment generally declined more moderately, creating the illusion that productive employment could be sustained in the midst of an economic depression. This can partly be explained by the fact that many workers remained ‘nominally attached’ to their work places although they were not actually working or earning wages. This phenomenon of ‘labour hoarding’ is particularly severe in agriculture where families work either on leased plots of land or in cooperatives as well as in state-owned industrial enterprises which refrain from labour lay-offs in times of output contractions. Fortunately, following the privatisation of medium and large-scale enterprises in the middle and late 1990’s, the underemployment hidden by such ‘labour hoarding’ in the earlier part of the decade became more apparent. Other explanations for the low official unemployment rates presented in table above include the fact that the chances of finding a job with the state-run employment agencies is so low that the amount of people signing up (hence registering as unemployed) to these agencies is minimal. Furthermore there is no unemployment benefits provided by the state in addition, job-seekers do not bother to register at various local government to really identify them as unemployed. The institution saddled with the responsibility of generating employment data in the has been merged, no principal agency is taken care of this gap in Nigeria.

The limited growth of investment and technological innovation has constrained the labor absorption capacity of the non-agricultural sector, especially manufacturing. This lack of capacity has exacerbated poverty, especially in urban areas. Two other factors- problems associated with the transition away from high-cost industries that are heavily dependent on imports and the impact of globalization on domestic industries that are unable to compete with imported substitutes- also appear to have contributed to the limited growth of domestic production and employment. International evidence from countries in roughly comparable circumstances suggests that the savings propensity in Nigeria is low, providing weak underpinning for the sustained domestic investment growth needed in the fight against poverty. Inadequate growth is the main cause of poverty in Nigeria. The lack of growth is impeded by the volatility of the oil sector, which affects a range of activities in the economy high and growing unemployment increases the number of poor people. Other factors that have contributed to the level and evolution of productive sector, widening income inequality, weak governance, social conflict, gender, inter-sectoral and environmental issues. The rate of urbanization in Nigeria- about 5.3% a year- is one of the fastest in the world. Urban unemployment is estimated at about 10.8%. If manufacturing and services sectors do not grow sufficiently to absorb the surge of labor to urban areas and if rural areas are not transformed to skim the growth in migration to urban unemployment could become unmanageable. The implications for poverty- is severely grave

### **Underemployment and Information of Nigeria’s Economy**

It has been argued that the informal sector is the employer of the last resort in low income countries including Nigeria. It is also evident in Nigeria that the informal sector is growing more than the modern sector of the economy. This situation is undesirable and

should therefore be reversed for obvious reasons. One does not necessarily need to have a tertiary education in order to work in the informal sector. With the expansion of the sector and dearth of available jobs in the country, graduates who eventually get absorbed in the informal sector are underutilized and poorly remunerated at the end. The right policies to stimulate the growth or expansion of the public sector which eventually should absorb the informal sector is imperative, and therefore strongly recommended. An example of such policy is the policy of backward integration of companies, such as the multinationals, corporations, etc. In this respect, medium, small-scale and cottage industries are linked in a continuum. In South Korea, for instance, backward integration has been so perfected that both medium, small-scale and cottage enterprises make inputs into the manufacturing and processing activities of the modern sector industrial establishments. For example, as a matter of policy, the manufacture or processing of different parts of a product such as electronics, wrist watches, vehicles, etc. is distributed down the line to medium, small-scale and cottage or household industries. To achieve this goal, these parts are specified and standardized. Thus, small and medium-scale establishments make useful inputs into manufacturing and processing activities of the country's modern sector.

### **Unemployment and Underemployment of Labour**

Unemployment is the non-utilization of human resources. It is that part of the labour force that is available, capable and willing to work, but cannot find productive employment. Underemployment means inadequate or underutilization of labour. It refers to less than full utilization of persons who to all appearances are at work. It lies between employment which refers to the full utilization of labour, and unemployment which signifies no work at all (Yesufu, 2000). Nigeria is characterized by prolonged and cumulative unemployment, a problem which first emerged in Nigeria in the 1980s among primary school leavers. Since the 1980s, the pool of the unemployed has included, in addition to young school leavers, highly qualified manpower and university graduates as well as experienced workers who lost their jobs in the wake of the economic crisis. Between 1985 and 1990, the number of unemployed professionals increased phenomenally (National Rolling Plan, 1996-1998).

Unemployment was a more serious problem in the 1990s, at the beginning of the downturn in the economy. This discouraged new investments and resulted in the adoption of stabilization measures including import restrictions. The import restrictions forced many companies to operate below capacity, while others closed down. A significant proportion of the workforce was retrenched. A study by the Manufacturers' Association of Nigeria showed that 61.0% of the companies surveyed were shut down for periods of not less than three months while between 62.0 and 64.9% of them retrenched over 100 workers (CBN, 1993). The government also placed embargo on employment from September 1981 in addition to public sector retrenchment. These made the employment of fresh graduates very difficult. The organizational downsizing and reengineering and rationalization policies adopted as part of the structural adjustment programme further worsened the unemployment problem.

Furthermore, the policy changes led to some structural changes in the economy. Sectors like oil, banking and the external sectors became the “blue chips” as against the public and industrial sectors which used to be the ‘prime’ of the labour market before the adoption of SAP (Obadan and Odusola). The public sector’s capacity for job creation was also reduced partly as a result of the rethinking on the role of government in the economy in the light of SAP. Implementing the SAP packages has meant the adoption of retrenchment programmes in the civil service as well as divestiture of state owned businesses with the consequent reduction of total public sector employment. This development created some structural and frictional unemployment problems in the country which when combined with lack of job placement of fresh graduates made the unemployment situation more tenuous. As pointed out by Umo (1996), an annual average of about two million fresh graduates enter the Nigerian labour market out of which only about 10% find employment. When these numbers are added to those who lost their jobs through rationalization, retrenchment downsizing, reengineering, etc., it becomes apparent that the number of job seekers is enormous (National Rolling Plan, 1996-1998).

Table 2.11: Unemployment and Under-employment Rates by sector in Nigeria

Year	Urban	Rural	National	Underemployment
1985	9.5	5.2	6.1	n.a.
1986	9.1	4.6	5.3	n.a.
1987	9.8	6.1	7.0	n.a.
1988	7.8	4.8	5.3	n.a.
1989	8.1	3.7	4.5	n.a.
1990	5.9	3.0	3.5	n.a.
1991	4.9	2.7	3.1	n.a.
1992	4.6	3.2	3.4	n.a.
1993	3.8	2.5	2.7	18.8
1994	3.2	1.7	2.0	16.4
1995	3.9	1.6	1.8	14.7
1996	3.9	2.8	3.4	15.9
1997	8.5	3.7	4.5	13.7
1998*	4.9	2.8	3.2	18.5
1999*	5.8	2.5	3.1	13.7
2000*	7.2	3.7	4.7	12.9

- Sources: 1. Obadan and A.F. Odusola, Productivity and Unemployment in Nigeria  
2. Federal Office of Statistics, 2001, Statistical News, 1<sup>st</sup> June, 2001  
3. Federal Office of Statistics, 1999, Review of the Nigerian Economy, 1998

## **METHODOLOGY**

### **3.1 Methodology/ Data Sources**

The historical data employed in this study was obtained from the National Bureau of Statistics. Household data on poverty was extracted from the National Living Standard Survey conducted by NBS in 2004. Data on employment was obtained from the Ministry of Labour and Productivity and Central Bank of Nigeria Statistical Bulletin. Other sources of data include World Development Indicator 2005 where other social indicators were obtained.

### **Analytical Framework**

Spatial dimension of poverty in Nigeria appears to be more critical and of significant policy relevance than temporal dimension. For these reasons, the analytical procedure adopted in this study followed the Shapley decomposition method which has been applied by several authors (Shorrocks, 1999; Kabore, 2002; Araar, 2003 and Baye 2004) to decompose poverty and has, therefore, become very popular in studies on spatial poverty analysis. The greatest advantage of this analytical approach is that it gives room to take into cognizance the various determinants of spatial poverty and inequality in a regression-based decomposition method.

### **Inequality Decomposition**

The origin of the modern inequality decomposition literature is found in Shorrocks (1980, 1982 and 1984), where he examined decomposition of inequality by income sources such as earnings, investment income and transfer payment; by population subgroups like single persons, married couples, and families with children; or by sub-aggregates of observations which share common characteristics like age, household size, region, occupation, or some other attributes. He showed that a broad class of inequality measures could be decomposed into components reflecting only the size, mean and inequality value of each population subgroup or income source. One of the basic and very important properties of the decomposition approach highlighted above is the decomposability effect. This requires overall inequality to be related consistently to constituent parts of the distribution, such as population sub-groups. For example, if inequality is seen to rise amongst each sub-group of the population, then we would expect inequality overall to also increase. Some measures, such as the Generalized Entropy class of measures, are easily decomposed and into intuitively appealingly components of within-group inequality and between- group inequality. Other measures, such as Atkinson set of inequality measures, can be decomposed but the two components of within-and between-group inequality do not sum to total inequality. The Gini coefficient is only decomposable if the partitions are non-overlapping, that is the sub-groups of the population do not overlap in the vector of incomes. An inequality measure can be regarded as source decomposable if total inequality can be broken down into a weighted sum of inequality by various household characteristics, space or income (for example, non-farm and agricultural income; rural and urban). Inequality can also be decomposed

by factor source (income source). The decomposition techniques described above are very suitable for assessing the contribution of a set of factors to inequality. However, one drawback is that the importance of a particular attribute will vary, depending on the measure of inequality that is decomposed. Traditional approaches to income distribution are mostly descriptive rather than prescriptive. Quantitative approaches like subgroup decomposition does not provide exhaustive explanation for important determinants like, policy impact, difference in human and physical capital.

Over the years, economists have attempted to develop the regression-based approach to inequality decomposition. Pioneers in this area include the studies of the labour economists Oaxaca (1973) and Blinder (1973). From their analysis of the determinants of discrimination in labour market Oaxaca and Blinder started a broad literature on inequality analysis that uses very sophisticated tools like micro-simulation and regression-based decomposition. Recent development of regression-based inequality decomposition techniques makes it possible to decompose inequality by income sources and population sub-groups. Regression-based methods are used to estimate the relative contribution of different variables on aggregate inequality (Heshmati, 2004). Another method is to construct the distribution of earnings or changes in poverty by assuming distributional characteristics with different time periods or regions as the benchmark. The changes are then decomposed into various components and related to various determinants.

### **Shapley Decomposition Method**

One critical issue in distributive analysis is how to assign weight to the factors that contribute to an observed level or change in a measure of living standards. For example, a change in the incidence of poverty between two dates may be attributable to factors such as within-sector effects, between sector effects or both, and analysts are interested in quantifying the relative importance of each component in this intra-inter-sector configuration. This issue is similar to problems that arise in cooperative game theory, and recent literatures in distributive analysis have proposed an attribution according to the Shapley Value (Shorrocks, 1999; Araar, 2003 and Baye 2004b). Shapley's axioms require that:

- 1) The expression should be symmetric (or anonymous), that is, it should be independent of the factor's label, 1, 2, ..., m;
- 2) The decomposition should be efficient, that is, it should be exact and additive. In other words, the intuitively appealing contributing factors should form a partition, so that there is no need for vague concepts such as residual or interaction terms to secure the identity of the decomposition.

The only function that satisfies the Shapley's axioms is given by the Shapley Value (Shapley, 1953; Young, 1985) is:



$$\phi_k^s(K, v) = \sum_{s=0}^{m-1} \sum_{S \subseteq K} \frac{(s-1)!(m-s)!}{m!} [v(S) - v(S - \{k\})]$$

$$k \subseteq S$$

$$|S| = s$$

$$|K| = m$$

The Shapley Values arises by imaging that players join the game in a random aorder. Player k receives the extra amount that he brings to the existing coalition of players S- {k}, that is,  $v(S)-v(S-\{k\})$ - the marginal contribution of players k to a coalition S. this implies that when player k joins the forming grand coalition, he and the players who have already joined make up some coalition S, of size s, which contains player k.

The Shapley value of player k,  $\phi_k^s(K, V)$  is the weighted average of the marginal contributions of this player over the set of coalitions  $\{S: k \in S \subseteq K\}$ . The weight associated with each coalition S is equal to the probability to obtain, in a random partitioning of K- {k} between sequence 1 and 2, the set S- {k} in sequence 1 and the set K-S in sequence 2. Marginal contributions such as  $v(S)-v(S-\{k\})$  occur for exactly those orderings in which k is preceded by the s-1 other players in S, and followed by the m-s players not in S. the number of orderings (or permutations) in which this happens is  $(s-1)!(m-s)!$ . The total number of possible orderings is given by  $m!$ , which is the number of permutations of m players taken m at a time. The weighing scheme is therefore, given as  $(s-1)!(m-s)!/m!$ .

Application of this decomposition method enables us to disentangle and quantify the contribution of inequality and expenditure levels on the regional variation on poverty in Nigeria. In this study, therefore, efforts were made to characterize each geo-political zone in terms of per capita expenditure and inequality and show how the deviations of zonal poverty levels from the national average can be attributed to these two sources.

## Model Specification

### Gini Decomposition

The Gini indices are used to derive the inequality index so that inter-regional inequality and sub-group inequality can be identified. It is useful to understand the causes of poverty. The Gini coefficient (G) can be decomposed into three components: between group, within group and overlapped. The decomposition can follow the four –step approach proposed by Yao (1999) and adapted by Wang et al, (2006).

Considering n individuals and divide them into m mutually exclusive and exhaustive groups. Also consider a variable y (usually real per capita household expenditure) to capture some aspect of well-being with mean  $\mu$  and an inequality index  $i$  defined for a given population of individuals. Then  $\mu$  can be calculated for each sub-group. The

between group inequality is calculated on the total population when each y in a group is replaced by the mean of y in that group. It indicates inequality that exists due to mean differences across the groups. This leads to high priority for equalizing across groupings that show a high between group components. Within group inequality is a weighted sum of the inequality indices calculated for each of the groups. It reflects the inequality that exists over and above mean differences across groups.

The Gini coefficient is given by:

$$G = 1 - \sum_{i=1}^n P_i(2Q_i - w_i) \quad (1)$$

$$Q = \sum_{k=1}^i w_k \quad \text{cumulative income share up to } i$$

Where G denotes the Gini coefficient for the population where each household is ranked by per capita income ( $m_i$   $i = 1, 2, \dots, n$ ) in an ascending order.  $P_i$  and  $w_i$  are respectively the population and income share of the  $i$ th household,  $n$  is the number of households. If the sample is divided into  $S$  groups, the between-group component represents the value of the Gini coefficient when the income of each individual is replaced by the mean income of the sub-group to which they belong. This is denoted by  $G_B$  and is derived as:

$$G_B = 1 - \sum_{i=1}^n P_i(2Q_i - w_i) \quad (2)$$

$$Q = \sum_{k=1}^i w_k \quad \text{cumulative income share up to } i$$

Where  $P_i$  and  $w_i$  denote respectively the population and income shares of the  $i$ th group ( $i = 1, 2, \dots, S$ ) in the population. The explanation for equation 2 is similar to equation 1. The only difference is the definitions of  $P_i$  and  $w_i$ . To derive  $G_B$ , all the elements in equation 2 must be sorted in an ascending order of class mean incomes  $m_i$  such that  $m_1 \leq m_2 \leq \dots \leq m_S$

The intra or within-group component, denoted by  $G_w$  is given as:

$$G_w = \sum w_i P_i G_i \quad (3)$$

Where  $w_i$  and  $P_i$  are respectively the income and population shares of  $i$ th group in the total population.  $G_i$  is the Gini coefficient for the  $i$ th sub-population. There are 's' Gini coefficients for  $S$  sub-groups. The equation for  $G_i$  looks identical to equation 2 except that the calculation is now focused on a particular sub-population.

The overlapped component  $G_0$  can be calculated as:

$$G_0 = G - G_w - G_B \quad (4)$$

$G_0$  is residual or interaction effect which vanishes when the regional income ranges do not overlap and is otherwise strictly positive.

### **Determinants of Spatial Inequality**

Spatial analysis of inequality typically begins with a measure of living standards or resources defined for a population of individuals or households. A common practice in the measure of living standard is income though it should be stressed at the outset that the income concept must be interpreted broadly to encompass not only home production and non-pecuniary income, but also all the advantages and disadvantages systematically associated with geographical location, including climate, regional price variations, local public goods provision and environmental quality. In essence, the analysis will assume that individuals with the same income at different locations are equally well-off. Thus the household expenditure was adjusted for regional differences using the consumer price index for the year under review.

For a given income generation function, alternative approaches can be used to decompose total income inequality (Wan, 2002). This study adopted the Shapley value framework of Shorrocks (1999) in the regression-based decomposition analysis. In this framework, the constant term becomes a scalar and can be ignored in inequality measurement or decomposition as long as a relative inequality measures are used. Shapely value decomposition in a regression-based analysis is obtained by first estimating a simple income generating model which is given as:

$$\ln Y_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_i X_i + \varepsilon_i \quad (5)$$

Where

$Y_i$  = the household total expenditure adjusted for regional cost differences

$X_i$  = vector of explanatory variables ( $i=1,2,3,\dots,m$ )

$\varepsilon_i$  = error term

The regressands are:

### **Household characteristics**

$X_1$  = age of household head

$X_2$  = household size

$X_3$  = gender of household head (1=male; 0 if otherwise)

### **Household assets**

$X_5$  = access to formal education of household head (1=yes; 0 if otherwise)

$X_6$  = access to credit (1 = yes; 0 if otherwise)

$X_7$  = Membership of social organization (1 = yes; 0 if otherwise)

$X_8$  = primary occupation of household head (1= farming; 0 if otherwise)

$X_9$  = access to electricity (1 = yes; 0 if otherwise)

$X_{10}$  = region (northern belt =1, Southern belt = 0)

The dummy variable used to capture regional effects categorized the six geo-political zones into two regional belts in Nigeria (the northern and the southern belt). Thus, the 3 geo-political zones in the northern belt (NE, NW and NC) were assigned the value of 1 while the 3 geo-political zones in the southern belt (Se, SW and SS) were assigned the value of zero in the regression equation.

After estimating the income function, we now apply the concept of the Shapley decomposition to decompose inequality obtained from income defined in equation 5. it should be noted that there are many rounds of variable elimination. The number of rounds is determined by the number of variables themselves. So if we are estimating a model containing four explanatory variables, then we have four rounds of elimination. Finally, the average contributions of each round are average across all rounds to obtain the total marginal effect of each variable on total inequality. After estimating consumption function and using Gini index as a measure of inequality, contribution attributable to each explanatory variable to the total level of inequality was determined using DAD and STATA software statistical package.

### **Employment and Poverty linkage**

The overall employment intensity of growth should be measured by the GDP elasticity of employment: the proportionate change in employment divided by the proportionate change in GDP. It is, however, very difficult to obtain reliable estimates of aggregate employment in Nigeria - particularly where there are large unorganized sectors for which estimates of employment at constant intensity of employment are difficult to come by. In such situations, it may be practical to focus on sectors (e.g., manufacturing industries) for which estimates of output and employment would be more reliable and more easily available. Of course, whenever possible, employment elasticities of other major sectors should be estimated in order to gauge the direction of the employment intensity of growth. Regarding methodology of estimating the elasticities, it is important to note the availability of alternatives, ranging from the simple measurement of arc elasticity (i.e., using data from two points in time) to more rigorous econometric estimates. The choice of a particular method is often dictated by the availability of data. But whenever necessary time series data are available it would be advisable to use the econometric method in order to avoid problems caused by fluctuations in the data.

Even after employment elasticities are estimated, their links to poverty remain to be examined. Doing this for Nigeria may not be so straight forward, especially if data on the incidence of poverty as well as employment elasticities are not available for a period of time. What should be possible, however, is to see if the level and direction of change in this statistic is appropriate from the point of view of its level of development, incidence of poverty and the existence of labour employment. Such an analysis can be done against the benchmark of Nigeria is incorporating programmes in achieving employment-intensive pro poor growth and in either abolishing poverty altogether or in reducing it substantially. The analysis of the summary indicator of the employment-intensity of economic growth as indicated above would need to be supplemented by a more detailed examination of whether and how growth has led to structural changes in an economy which has benefited the poor. In that regard, the first important thing to examine would

be the sectors and occupations where the poor are concentrated and what the trends in productivity and earnings in various occupations are like. The second important task would be an examination of whether there are discernible shifts in the structure of employment towards occupations with higher productivity. The third important element in the channel of transmission of benefits of growth to the poor would be real wages and earnings of wage-paid workers and real earnings of the self-employed. An examination of the linkage between real wages and productivity would enable one to examine whether the benefit of growth has reached the poor.

The above discussion focused basically on a macro level analysis of how economic growth could contribute to poverty reduction through increases in employment in higher productivity sectors/occupations and a rise in real wages. A similar analysis could be carried out at the micro (household) level to examine the impact of employment and labour market related variables on poverty. Conceptually, it is possible to think of a number of such variables which could influence the probability of a household being poor in terms of inadequate income. The variables could be asset-related (e.g., the possession of income generating assets), human capital related (e.g., education and skill levels of the working members of a household) or employment related (e.g., the sector and quantity of employment of the workers, wages, productivity, etc.). Once necessary data are available for quantifying variables of the kind mentioned above and for identifying whether a particular household belongs to the poor or non-poor category, standard econometric methods can be applied to examine the influence of employment and labour market related variables on the probability of a household being poor.

In the above discussion, pro-poor growth is conceptualized in terms of the employment outcome of growth and employment serving as the link between growth and poverty reduction. However, a critical element in this link is the income of the poor resulting from growth and employment. Hence, pro-poor growth can also be conceptualized in terms of the share of the poor in the additional output that is produced. Based on this criterion, growth can be characterized as pro-poor only when the share of the poor in the additional output increases, or in other words, when the distribution of income improves. Of course, it is possible for the income of the poor to increase (and the incidence of poverty to decline) even when the distribution of income does not change or worsens. But the poverty reducing effect of economic growth in such cases would be lower than in the case of growth with improved income distribution (i.e., lower inequality).

The methodology employed in this section involves a macroeconomic analysis of the linkage between the incidence of poverty and employment intensity of growth in Nigeria. For the former, employment elasticity in manufacturing has been used as an explanatory variable along with GDP growth to explain the variation in annual change in the incidence of poverty (using a headcount measure). In other words, an attempt has been made to estimate the following function by using NBS data, CBN statistical bulletin and national manpower Board data.

$$ACPI = f(PCI, GRAD OUT, DEP RATIO, ELASTICITY, AGRIC EMPLOY, MGDGP)$$

ACPI = Annual Change in Poverty Index

GRAD OUT=university graduates turn out

ELASTICITY= employment elasticity in the manufacturing

DEP RATIO=dependency ratio

AGRIC EMPLO= agricultural employment

MGDPG=manufacturing gdp growth rate

MANUEMPL=employment in manufacturing

PCI= per capita income

The Nigerian data have been used to test the hypothesis concerning the impact of employment and labour market variables on the incidence of poverty. Although it is not easy to define such variables at the macro level exactly in the same way as can be done at the household level, an attempt has been made to identify several variables, at least in surrogate form following (Islam, 2004). Since employment in non-farm activities is found to influence the income of the poor, employment in agriculture and manufacturing were used as explanatory variables. Labour market factor such as the sectoral composition of employment is extremely important variable in determining the relationship between economic growth, poverty and more importantly in determining whether growth is pro-poor. Likewise, dependency ratio has been used as an indicator of the extent of labour force participation. Level of education and skill of the workforce is hypothesized as exerting a positive impact on the income of the poor. However, at the macro level it was not easy to define this variable; and hence a surrogate in the form of university graduates turn out has been used as an indicator to capture the education variable. When the variables poverty index and per capita income are used in the model they both display endogeneity which shows that they are not exogenous. When such happens there is the need to run a vector Auto-regression Estimates which is the case in this model.

## **SOCIO-ECONOMIC CHARACTERISTICS OF HOUSEHOLDS**

The result of the descriptive analysis of the socio-economic characteristics of Nigerian households is presented in this section. Socio-economic variables considered in this study include age of household head, gender and primary occupation of household head. Others are household size, per capita expenditure (proxy for income), capital assets such as human capital (education), social capital (membership of social organization); physical capital (access to electricity); and financial capital (access to credit). The contributions of these variables to inequality were examined across the six geo-political zones and the result of the summary statistics of the discrete variables is presented in Table 4.1. From the Table, the average age in Nigeria is given as 47 years while Nigeria households have an average of 4 persons. For those household with access to credit, the average amount of credit use per year is given as N1,938 and similarly for those who have access to credit,

the average monthly credit bill is N496. The average per capita expenditure for Nigerian households is N28, 442

Table 4.1: Summary Statistics of Discrete Socio-economic Variables

Variables	Age	Household size	Amount of credit (N/y)	Monthly electricity bill (N/m)	Per capita expenditure
Mean	47	4	1938	496	28442
Median	45	4	1865	458	20877
Mode	50	4	2055	5003	30003

Source: Computed from NLSS, 2003/2004 data

For the continuous variable, the percentage distribution of households across the six geo-political zones is presented in Table 4.2. The table indicated that a larger proportion of Nigerian households were male-headed. Zonal variations, however, show that the southern geo-political zones recorded more of female-headed households than their northern counterpart. Primary occupation of household head revealed the predominant of farming as more than 70 per cent of the household heads in the northern zones are primarily farmers. The average varies from 50-70 per cent among the southern zones with the national average of 73 per cent. In terms of access to formal education by the household head, households in the southern zones had their heads having more access to formal education than their northern counterparts. However, the national average shows that those household heads with no access to formal education were more than 50 per cent. The North-West geo-political zone had the least household head with access to formal education. For membership of social organization, the percentage of households with their members belonging to one form of social organization or the other is more than 50 per cent. The same trend was observed for most of the geo-political zones except for North-West and North-East.

Table 4.2: Percentage Distribution of Households by Socio-economic Variables

Variables	NC	NE	NW	SE	SW	SS	National
<b>Gender</b>							
Male	10.4	4.5	1.1	29.7	23.6	22.9	13.5
Female	89.6	95.5	98.9	70.3	76.4	77.1	86.5
<b>Primary occupation</b>							
Farming	70.0	86.5	89.8	70.5	60.6	50.2	73.4
Non-farm	30.0	13.5	10.2	29.5	39.4	49.8	26.6
<b>Formal Education</b>							
Had access	40.3	22.4	14.2	56.0	76.9	66.7	49.9
No access	59.7	77.6	85.8	44.0	23.1	33.3	50.1
<b>Social organization</b>							
Members	63.9	49.1	39.7	63.5	57.9	65.3	55.6
Non-members	36.1	50.9	60.3	36.5	42.1	34.7	44.4

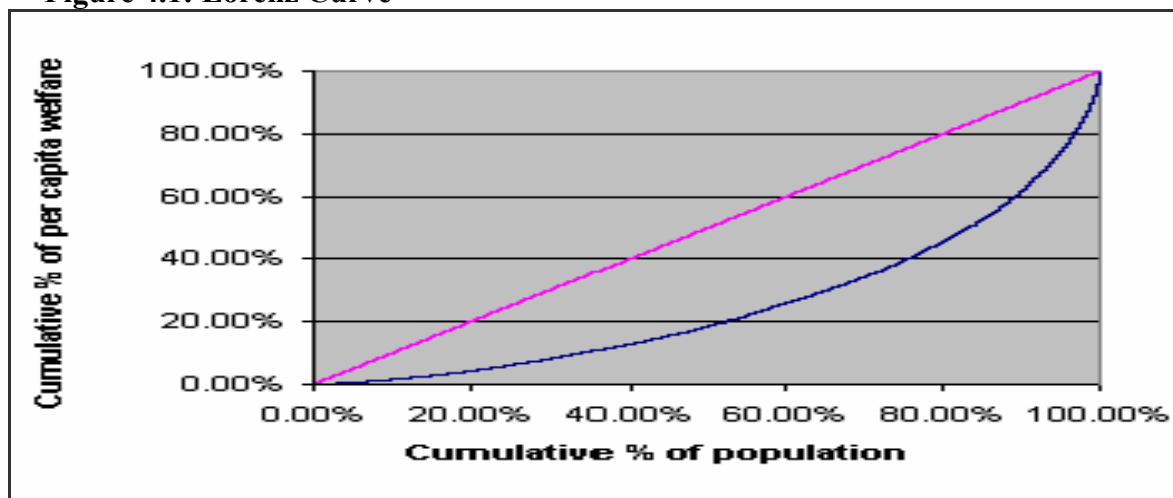
Source: Computed from NLSS, 2003/2004 data

## Inequality Measures and Lorenz Curve

The best known inequality measure is the Gini Coefficient and is related to the Lorenz Curve. The Lorenz Curve, see Figure 4.1, is based on an ordering of all individuals from the poorest to the least poor and examined the cumulative consumption share as a function of their cumulative population share.

The two curves presented here are (1) an idealized curve or straight line and (2) a concave curve. The straight line represented an ideal distribution where 1 per cent of the population can be attributed to 1 (one) per cent of the welfare measures; 10 (ten) per cent is attributable to 10 per cent, and so forth. In the case of Nigeria, the poorest 10 per cent of the population is attributed 1.6 per cent of the national welfare and the highest 10 per cent account for about 40 per cent of the welfare measures.

**Figure 4.1: Lorenz Curve**



**Source: NBS, 2006 Based on NLSS, 2003/2004**

As already mentioned, a closely-related measure of inequality to the Lorenz curve is the Gini Co-efficient. The coefficient gives a measure of the difference between the idealised curve and the area under the actual Lorenz Curve. The smaller the measure or the closer it is to 0, the more the Lorenz Curve approaches the idealised line; whereas the closer the Gini co-efficient is to 1, the more skewed the curve. The Gini coefficients as computed by NBS for the rural and urban sectors, as well as for the six geo-political zones are presented in Table 4.3. Illustration of the individual state indices is provided in Figure 4.2. Majority of the states in the Northern geo-political zone fell below the national average.



Table 4.3: Inequality Measure by Sector and Geo-Political Zones

<b>Inequality Measure</b>	<b>Gini Co-efficient</b>
<b>National</b>	0.4882
<b>Sector</b>	
Urban	0.5441
Rural	0.5187
<b>Zone</b>	
South South	0.5072
South East	0.4494
South West	0.5538
North Central	0.3934
North East	0.4590
North West	0.3711

Source: NBS, 2006 based on NLSS, 2003/2004 data

Since the Gini coefficient has already been established by NBS, it is therefore, easier to examine the subgroup decomposition of inequality in Nigeria using the household characteristics. In other words, the Gini coefficient is further decomposed by household characteristics and the result is presented in Table 4.4. The results show that inequality in income distribution varies between female and male headed households. Inequality is higher among the male-headed households than the female-headed household. Expectedly, income inequality varies with the level of access to formal education. Thus, households where the household head had no access to formal education experienced higher income inequality. The level of income inequality is; however, lower among household in which the primary occupation of the household head is farming probably due to low diversification among the household members. The level of income inequality is equally lower among household where members belong to one social organizations or the other as this improved their social capital formation and therefore raised their welfare status. Households with access to electricity have higher income inequality since this could have assisted them in diversifying their income sources. Finally, it was found that households with access to credit were able to reduce their inequality gap since credit is expected to enhance their productive capacity.



Table 4.4: Decomposition of Gini Coefficient by Household Characteristics

Household characteristics	Gini coefficient
<b>Gender</b>	
Male-headed	0.429
Female headed	0.418
<b>Access to formal education</b>	
Have access	0.406
No access	0.417
<b>Primary occupation</b>	
Farming	0.401
Non-farm	0.425
<b>Social group membership</b>	
Member	0.409
Non-member	0.421
<b>Access to electricity</b>	
Have access	0.423
No access	0.407
<b>Access to credit</b>	
Have access	0.401
No access	0.418

Source: Estimated from NLSS, 2003/2004 data

Inequality was further disaggregated to between group and within group using household characteristics and the results is presented in Table 4.5. The results show that between group inequalities was higher than within group inequality for household size, education of household head and geo-political zone while it was lower for gender, access to credit, social group membership and primary occupation of household head. The fact that inequality in income distribution between household heads with formal education was higher than those with no formal education calls for policy that will redistribute mean income in favour of the uneducated subgroup. The within-group inequality component was greater than the between inequality for access to credit. This indicates that factors underlining credit rationing could be biased and thus, enunciates inequality among those with access, especially when credit is not given according to the need of individual. Such factors include imperfection in credit market information.

Table 4.5: Decomposition of Inequality to Between and Within Group Components

Household characteristics	Between- Group	Within- Group
Gender	0.115	0.300
Household size	0.374	0.041
Education of household head	0.269	0.146
Access to credit	0.113	0.302
Access to electricity	0.136	0.279
Primary occupation of head	0.183	0.233
Social membership	0.205	0.210
Geo-political zone	0.349	0.066

Source: Computed from NLSS, 2003/2004 data.

### Household size and Income Distribution

Household size has been found to be one of the major drivers of income inequality among the Nigeria households. Poverty incidence, depth and severity have been found to vary with the size of the households. Thus, households with higher number of people were found to be poorer. The contribution of household size to income inequality is presented in Table 4.6. The Gini coefficient increases with household size. Households with more than 12 members have the highest income inequality. In terms of contribution of household size to income inequality, the highest contribution was found among household with relatively fewer members.

Table 4.6: Decomposition of Gini Coefficient by Household size

Household size	Estimated Gini	Absolute contribution	Relative contribution
< = 4	0.356	0.007	0.6829
5-8	0.366	0.005	0.3048
9-12	0.385	0.002	0.0081
> 12	0.406	0.001	0.0041

Source: Computed from NLSS, 2003/2004 data

### Spatial Decomposition of Income Inequality

Income inequality at national and zonal levels have already been computed by NBS (Table 4.3), however, in this section efforts were made to examine the zonal contribution (both absolute and relative) to the observed national income inequality and this is presented in Table 4.7. From the Table, South-East and North-Central appeared to have contributed most to the observed national income inequality with their relative contribution of 0.2248 and 0.2185 respectively. The least contribution came from the South-West geo-political zone.

Table 4.7: Decomposition of Gini Coefficient by Geo-political Zones

Geo-political zones	Gini coefficient	Absolute contribution	Relative contribution
North Central	0.3934	0.0144	0.2185
North East	0.4590	0.0099	0.1511
North West	0.3711	0.0110	0.1662
South East	0.4494	0.0148	0.2248
South South	0.5072	0.0123	0.1870
South West	0.5538	0.0035	0.0522

Source: Computed from NLSS, 2003/2004 data

### Regression-Based Shapley Inequality Decomposition

The first step in regression-based inequality decomposition is to estimate the consumption function using the ordinary least square regression (OLS) method. This is followed by the application of Shapley method to decompose inequality index (Gini coefficient) to derive the contribution of each variable to overall inequality. Since this study made use of cross sectional data some of the problems associated with the use of secondary data such as co-integration and stationarity of variables may not be serious concern. Using household per capita expenditure as a proxy for income, analysis of the determinants of household income was carried out by estimating the consumption function using OLS and the result is presented in Table 4.8. The regression model shows a reasonably high level of fitness with the adjusted R-square of 0.62. The result shows that all the independent variables are significant at one per cent except for gender and age of household head. These two variables will not be included in the Shapley decomposition analysis. Household size, primary occupation of household head and geo-political zone have negative coefficient showing an inverse relationship. As household size increases, so also the per capita expenditure of household decreases. Similarly, per capita expenditure decreases as we move from the more commercially oriented southern geo-political zones to the more agro-based northern geo-political zones. Similarly, per capita expenditure decreases with primary occupation of household heads. In other words, per capita income decreases with households where household heads engage primarily in farming. Meanwhile, educational status of household head, social organization membership and access to credit and electricity has positive relationship with household income. Thus, increasing access to capital assets will result in increase in level of household income. This, thus, calls for poverty reduction strategies targeted at improving household access to productive resources. Similarly income redistribution policy that ensures the provision of infrastructures in the rural areas will enhance livelihood diversification into non-farm activities, which will enhance household welfares status.

**Table 4.8: Determinants of Household Income (OLS)**

Variables	Standardized coefficient	Standard error	t-values	Significant level
Constant	10.51	0.030	350.44	0.000
Household size	-0.375	0.002	49.01	0.000
Gender	0.008	0.017	1.02	0.310
Household head education	0.090	0.013	10.67	0.000
Pry. occupation of h/head	-0.049	0.013	6.30	0.000
Social group membership	0.043	0.011	5.89	0.000
Age of household head	0.014	0.001	1.79	0.073
Access to credit	0.069	0.015	9.68	0.000
Access to electricity	0.044	0.015	5.81	0.000
Geo-political zone	-0.020	0.013	23.10	0.000

Source: Estimated from NLSS, 2003/2004

Adjusted  $R^2 = 0.62$       DW = 1.173

Dependent Variable: LNPCEXPD (log of per capita expenditure)

In order to determine the absolute and relative contribution of each of the significant variables in the consumption function to income inequality, Shapley decomposition method was applied to the Gini coefficients and the result is as shown in Table 4.9. The result shows that household size and geo-political zone accounted for the greater proportion of income inequality in Nigeria with their relative contribution of 55 and 29 per cent respectively. Hence policy thrust to reduce inequality should emphasize population control. Since spatial inequality is evident from the analysis, pan territorial income distribution policies may not be appropriate for the country as such, zonal income policies in line with political administrations in each zone may be more effective. Among the household capital assets, social capital had the highest relative contribution of 3.68 per cent to inequality in Nigeria while access to electricity had the least contribution of 2.45 per cent.

**Table 4.9: Shapley Decomposition of Inequality in Nigeria**

Inequality source	Absolute contribution	Relative contribution
Household size	0.1094	0.5503
Household head education	0.0045	0.0230
Pry. occupation of h/head	0.0086	0.0427
Social group membership	0.0073	0.0368
Access to credit	0.0053	0.0257
Access to electricity	0.0027	0.0245
Geo-political zone	0.0580	0.2976

Source: Computed from NLSS, 2003/2004 data

### **Analysis of Poverty Profile in Nigeria**

#### **Estimation of Poverty Line**

Traditional poverty analysis makes use of certain indicators. The most commonly used and understood is a *poverty line*. This has become the standard tool of policy makers for poverty monitoring. In a poverty line, people are counted as poor when their measured

standard of living falls below a minimum acceptable threshold. There are various measures that can be used to define this minimum level of welfare and much controversy surrounds the choice of poverty line. Whatever methods used to define this threshold, the poverty line is a relatively arbitrary divider of poor and non-poor.

In this report two different concepts of poverty measures were adopted based on (NBS, 2006). Absolute or objective measure refers to as Food Energy Intake (FEI) and Dollar per day otherwise refers to as subjective measure of poverty. Although the use of the FEI method is becoming more acceptable, this report will focus on the use of a relative poverty line. This is done in order to maintain a trend with previous surveys. It may also be an opportune moment to transit to the objective method.

### **Objective Measure of Poverty (Food Energy In-take)**

The goal of this method is to define the level of consumption that will enable the household to obtain enough food to meet its basic energy requirement. This approach computes the cost of acquiring a given food basket providing adequate calories for the individuals in the household. The following steps are used to compute the objective poverty line:

- Compute a national food basket based on the consumption patterns of the poorest 40 percent of the population.
- The bottom 40percent is computed by dividing per capita expenditure into quintiles (20percent brackets) and examining food preferences of the bottom two quintiles.
- Compute the amount of food expenditure required to attain 2900 calories<sup>2</sup> per day based on the national basket for the poorest 40percent.
- Food consumption is a function of age and sex composition of the household. Infants and younger children do not require the calorie intake that adults do. This means the measure is based NOT on per capita expenditure but per equivalent adult expenditure (See Table 4.10).

Table 4.10: FAO Adult Equivalent Scale

Age	Sex	
	Male	Female
0-1 yrs	0.27	0.27
1-3 yrs	0.45	0.45
4-6 yrs	0.61	0.61
7-9 yrs	0.73	0.73
10-12 yrs	0.86	0.78
13-15 yrs	0.96	0.83
16-19 yrs	1.02	0.77
20 and above	1.00	0.73

Source: NBS, 2006 based on NLSS, 2003/2004 data

<sup>2</sup> 2900 calories per day requirement is defined by the WHO. The given choice of calories depends upon the country, its habits and customs.

This Table attributes a proportion of an adult depending upon age and sex and perceived caloric requirements. NBS (2006) calculated a minimum annual expenditure required per equivalent adult as 21,743 Naira on food to attain 2900 calories per day. This expenditure on food constitutes threshold for extreme poverty.

*This gave an extreme poverty incidence of 36.6 per cent*

- A non-food component was added by examining the average non-food expenditure for those households (+ or – 100 households) around the core poverty line. This computed to 8,385 Naira.
- This is added to the food expenditure for a total expenditure threshold of 30,128 Naira. This gave a poverty incidence of 54.7 percent

## Dollar per Day

The dollar per day has become an acceptable standard for measuring poverty across countries for international comparability. It is defined in terms of deflated Dollar per day. This process of establishing parity in the acquisitive power of a Dollar is called Purchasing Power Parity or PPP. In this analysis, the 2002 World Bank Purchasing Power Parity for one Dollar per day was adopted<sup>3</sup>. The following procedures were followed in its computation

- Used an adjusted measure of the 2002 World Bank Purchasing Power Parity.
- The 2002 PPP for Nigeria 46.2 Naira to the Dollar.
- This was adjusted for 2003 using inflation rates and exchange rate changes.
- This computed to 59.2 Naira (PPP) to the Dollar.
- This was annualized and gave a total expenditure threshold of 21,608 Naira per person. Those who fall below this expenditure threshold were considered poor.

*This gave a poverty incidence of 51.6percent*

At the national level the poverty rate was given as 51.6 per cent, while 48.5 per cent was non-poor. In the urban the rate of poverty was calculated to be 40.1 per cent while in the rural areas, the incidence of poverty was 60.6 per cent. Both the Dollar per day method and the 2900 calorie FEI provide comparable results.

## Poverty Incidence, Depth and Severity in Nigeria

Incidence of Poverty (Headcount Ratio) (PO): Is defined as the proportion of the population for whom consumption falls below poverty line, in a given population. Poverty Gap (PI) on the other hand is the depth of poverty or distance between the income of the average poor and the poverty line. It is the extent to which the income of the poor lie below the poverty line while severity of poverty (P2) weights the poverty of



the poorest individual more heavily than those just slightly below the poverty line. The welfare gap is a measure of the ratio of poverty incidence to poverty depth. NBS (2006) has calculated poverty incidence, depth and severity for Nigeria using NLSS 2003/2004 data and the result is presented in Table 4.11. The Table shows that poverty is more of rural phenomenon in Nigeria as the incidence; depth and severity were higher in the rural than the urban sector. In terms of geo-political zone, however, the highest poverty incidence was recorded for the North East while the highest poverty depth and severity was observed in the North Central. Conversely, the lowest poverty incidence, depth and severity was recorded in the South East but the highest welfare gap was observed for the South-South geo-political zone.

Table 4.11: Poverty Incidence, Depth and Severity in Nigeria

	Incidence of Poverty (P0)	Poverty Depth (P1)	Poverty Severity (P2)	Welfare Gap (P1/P0)
<b>National</b>	54.41%	0.2180	0.1191	0.4006
Urban	43.19%	0.1670	0.0918	0.3868
Rural	63.27%	0.2582	0.1406	0.4080
<b>Zones</b>				
South South	35.06%	0.1696	0.0903	0.4837
South East	26.74%	0.0996	0.0455	0.3724
South West	43.01%	0.1821	0.1024	0.4234
North Central	66.97%	0.2832	0.1685	0.4229
North East	72.16%	0.2743	0.1434	0.3801
North West	71.17%	0.2567	0.1374	0.3607

Source: NBS, 2006 based on NLSS, 2003/2004 data

#### **Decomposition of Poverty Incidence, Depth and Severity by Household Characteristics**

Further decomposition was carried out in order to examine the contribution of household characteristics to poverty incidence, depth and severity in Nigeria and the result is presented in Table 4.12. The decomposition was only carried out for the significant variable in the consumption model. The Table shows that poverty incidence, depth and severity in Nigeria vary with household size. In other words, the higher the household size, the higher the poverty incidence, depth and severity. Households with the household head having formal education were able to reduce the incidence, depth and severity of poverty when compared with their counterparts with no formal education. Similarly, poverty incidence, depth and severity were found to vary with household capital formation. Households whose members belong to social group and those with access to credit and electricity had lower poverty incidence, depth and severity.

Table 4.12: Decomposition of poverty Incidence, Depth and Severity by Household Characteristics

Household characteristics	Incidence	Depth	Severity
<b>Household size</b>			
< = 4	0.3167	0.1073	0.0295
5-8	0.6632	0.2708	0.1431
9-12	0.7154	0.3412	0.1971
> 12	0.8142	0.3974	0.2361
<b>Household head education</b>			
No formal education	0.5726	0.2319	0.1228
Have formal education	0.3982	0.1425	0.0715
<b>Pry. occupation of h/head</b>			
Non-farm	0.3774	0.2656	0.0774
Farming	0.5516	0.7344	0.1123
<b>Social group membership</b>			
Non-membership	0.5403	0.2168	0.1140
Membership	0.4774	0.1820	0.0942
<b>Access to credit</b>			
Do not have access	0.5147	0.2030	0.1067
Have access	0.4572	0.1688	0.0842
<b>Access to electricity</b>			
No access	0.5336	0.2092	0.1089
Have access	0.3817	0.1453	0.0771

Source: Computed from NLSS, 2003/2004 data

### **Spatial Decomposition of Poverty Incidence, Depth and Severity in Nigeria**

Efforts were also made to examine the spatial dimension of poverty incidence, depth and severity in Nigeria by further decomposition by geo-political zone. This is to determine the relative contribution of each of the six geo-political zones to the observed national poverty incidence, depth and severity in the country and the result is presented in Table 4.13. The contributions of each of the six geo-political zones to poverty incidence, depth and severity followed the same pattern with the northern geo-political zones contributing more than their southern counterparts. Specifically, the highest contribution came from the North-West followed by the North Central and then the North East. In all cases, the three northern geo-political zones contributed more than 60 per cent to poverty incidence, depth and severity in Nigeria. The least contribution came from the South East geo-political zone.

Table 4.13: Spatial Decomposition of Poverty in Nigeria

Sector/zone	Incidence	Relative contribution	Depth	Relative contribution	Severity	Relative contribution
Urban	0.3147	0.1657	0.1168	0.1589	0.0614	0.1598
Rural	0.5030	0.8343	0.1980	0.8411	0.1034	0.8442
Geo-Political Zone						
South South	0.3864	0.1265	0.1340	0.1132	0.0645	0.1045
South East	0.2665	0.0815	0.0802	0.0634	0.0358	0.0542
South West	0.2749	0.0952	0.1001	0.0895	0.0517	0.0885
North Central	0.5533	0.2181	0.2483	0.2527	0.1457	0.2839
North East	0.5741	0.2091	0.2213	0.2081	0.1113	0.2005
North West	0.6213	0.2696	0.2437	0.2729	0.1252	0.2684

Source: Computed from NLSS, 2003/2004 data

### Employment Poverty Linkages

It is possible to compute figures on employment elasticities in the manufacturing and poverty incidence for the period 1990-2005. Although the sample is not very large; it was possible to use this data set to run OLS regression for estimating equation 6. The regression result of the elasticities of employment on poverty incidence in Nigeria is presented in Table 4. 14. It is clear from the results that the model involving growth and employment elasticity as explanatory variables for annual change in poverty incidence performs quite well in terms of the signs of the variables. While the level of significance of the variables is not as strong in terms of the overall relationship, (It should be mentioned that an alternative specification with per capita GDP growth rather than overall GDP growth was also tested, but produced results which are not as good as the ones reported here.) Where it does not perform so well is in terms of the percentage of variation explained by the two selected variables. This is not surprising because in the analytical framework outlined in the previous section, it is the overall employment intensity of an economy that is expected to influence change in poverty, but in estimating the regression model we could only have employment elasticity for manufacturing. The fact that the coefficient of this variable has the right sign despite its limitation as an indicator of overall employment intensity is an indication that it could be taken as support for the hypothesis of employment intensity of growth influencing the rate of poverty reduction.

In a similar work by (Islam, 2004), the same model was adopted and the result obtained in this study compared favorably with Islam findings. As a matter of fact, our result performed better than what was obtained on employment elasticities and poverty incidence. Our GDP coefficient though , its growth in Nigeria has not effectively translated into a reduction in poverty .The coefficient on employment elasticity is positive as expected since an increase in employment in the manufacturing is expected to create more wealth and reduce poverty.

Table 4.14 :Economic Growth ,Employment and poverty

Variable	Coefficient	Std. Error	t-Statistic	Prob.
$\Delta(\text{POVINDE}(-1))$	0.633430	0.025805	24.54645	0.0001
$\Delta(\text{RPCI})$	0.006160	0.002117	2.909264	0.0620
$\Delta(\text{GRADOUT})$	2.229219	0.321451	6.934858	0.0061
$\Delta(\text{GRADOUT}(-1))$	0.893277	0.261765	3.412511	0.0421
$\Delta(\text{DEPRATIO})$	17.34502	1.892072	9.167209	0.0027
$\Delta(\text{ELASTICITY})$	0.418480	0.206724	2.024336	0.1361
$\Delta(\text{ELASTICITY}(-1))$	1.667017	0.228027	7.310614	0.0053
$\Delta(\text{AGRICEMPLO})$	-0.157571	0.021691	-7.264499	0.0054
$\Delta(\text{AGRICEMPLO}(-1))$	0.175542	0.025041	7.010304	0.0060
$\Delta(\text{MGDPG})$	21.25502	1.620806	13.11386	0.0010
$\Delta(\text{MGDPG}(-1))$	10.93166	0.759334	14.39638	0.0007
$\text{ECMPOVINDE}(-1)$	-0.497922	0.026018	-19.13764	0.0003
R-squared	0.998496	Mean dependent var		0.793333
Adjusted R-squared	0.992979	S.D. dependent var		3.591750
S.E. of regression	0.300947	Akaike info criterion		0.426800
Sum squared resid	0.271708	Schwarz criterion		0.993240
Log likelihood	8.799004	Durbin-Watson stat		1.705623

It has been possible to estimate the model in (equation7) involving various employment and labour market variables using data for 1990-2006. Although it is not easy to define such variables at the macro level exactly in the same way as it can be done at the household level, an attempt was made to identify several variables, at least in surrogate form. Since employment in non-farm activities is found to influence the income of the poor, employment in agriculture and manufacturing were used as explanatory variables. Likewise, dependency ratio was used as an indicator of the extent of labour force participation. Level of education at both primary and secondary school level and skill of the workforce is hypothesized as exerting a positive impact on the income of the poor. On the basis of this, therefore, it was then possible to use this data set to run OLS regression for estimating equation (7). The log form of the equation was adopted while analysis was mainly carried out for the long run model using E-view 4.1. It is clear from the results that the model involving manufacturing GDP growth and employment elasticity as explanatory variables for annual change in poverty incidence performs quite well in terms of the sign and level of significance of the variables as well as the strength of the overall relationship. Where it does not perform so well is in terms of the percentage of variation explained by the two variables. This is not surprising because in the analytical framework outlined in earlier section, it is the overall employment intensity of growth of an economy that is expected to influence change in poverty, but in estimating the regression model we could only have employment elasticity for manufacturing. The fact that the coefficient of this variable has the right sign and is statistically significant despite its limitation as an indicator of overall employment intensity should be taken as support for the hypothesis of employment intensity of growth influencing the rate of poverty reduction. It should be mentioned here that an alternative specification with overall GDP growth rather than per capita GDP growth was also tested, but produced results which are not as good as the ones reported here. The result of the vector auto regression estimates of the model is thereby presented in Table 4.15. Estimation and inference may, however, be complicated

by the fact that endogenous variables may appear on both the left and right sides of equations. Thus, one way of solving these problems is the introduction of Vector Auto-regression Regression (VAR).

The VAR is commonly used for forecasting systems of interrelated time series and for analyzing the dynamic impact of random disturbances on the system of variables. The VAR approach sidesteps the need for structural modeling by treating every endogenous variable in the system as a function of lagged values of all the endogenous variables in the system. This is the situation with this model where poverty index and per capita income are both endogenous.

Labour market factors such as the sectoral composition of employment are extremely important variable in determining the relationship between economic growth, poverty and more importantly in determining whether growth is pro poor. The sign associated with these variables can be taken as an indicator of whether income inequality is worsening or improving in the process of development. A positive sign in our formulation would be an indicator of better performance, while a negative sign shows that it is worsening. The result shows a relatively good fit with R-square of 0.99. Similarly from the result of the analysis, all the variables showed the right signs and are statistically significant. The fact that the coefficients of employment in agriculture is negative shows that currently in Nigeria, the agricultural sector has not been performing the expected role in the national economy. Nevertheless, the result obtained in this study shows a significant improvement over (Islam, 2004) on the pooled data of 23 countries. Based on the regression results mentioned above, the hypothesis of the impact of employment and labour market variables on poverty reduction seems to remain strong. It can be broken down into sectoral components (i) concentration of workers in agriculture increases poverty incidence (ii) a shift of workers to manufacturing sector reduces poverty (iii) education of the workforce (or population as a whole) contributes to poverty reduction (iv) higher dependency burden increases poverty. All these hypotheses have been validated by this result.

Employment remains the core index for poverty measurement and evaluation. When an economy approaches the threshold of “Pull Employment” *ceteris paribus*, poverty decline begin to tend towards zero and vice versa. It now appears obvious that the much talked about poverty in Nigeria is directly correlated to the amount of productive employment being generated through project and programme execution. However, due to the implementation of poverty eradication programmes of the current administration, indicators are that the current unemployment rate appears to be stabilizing at about 12.35%.

Table 4.15: Vector Auto Regression Estimates

	POVINDEX	DEPRATIO	AGRICEMPL O	ELASTICITY	MGDPG	RPCI
POVINDEX(-1)	1.157872 (0.52025) [ 2.22561]	0.002311 (0.01755) [ 0.13169]	0.214730 (0.41816) [ 0.51352]	0.266558 (0.13117) [ 2.03219]	0.004766 (0.00652) [ 0.73148]	8.320905 (11.8421) [ 0.70265]
POVINDEX(-2)	-0.419846 (0.22981) [-1.82691]	0.003702 (0.00775) [ 0.47756]	-0.383503 (0.18471) [-2.07621]	-0.078163 (0.05794) [-1.34901]	-0.001898 (0.00288) [-0.65936]	-4.147022 (5.23107) [-0.79277]
DEPRATIO(-1)	7.171068 (14.3431) [ 0.49997]	-0.238292 (0.48386) [-0.49248]	20.96050 (11.5284) [ 1.81816]	-3.536263 (3.61625) [-0.97788]	-0.072928 (0.17964) [-0.40597]	-109.1187 (326.483) [-0.33422]
DEPRATIO(-2)	-18.25246g (17.8213) [-1.02419]	-0.812403 (0.60119) [-1.35132]	0.908126 (14.3240) [ 0.06340]	-5.450572 (4.49318) [-1.21308]	0.136480 (0.22320) [ 0.61147]	371.9107 (405.655) [ 0.91681]
AGRICEMPLO(-1)	0.245631 (0.22084) [ 1.11224]	0.003181 (0.00745) [ 0.42699]	-0.420471 (0.17750) [-2.36879]	-0.099350 (0.05568) [-1.78430]	-0.004690 (0.00277) [-1.69578]	-11.08285 (5.02692) [-2.20470]
AGRICEMPLO(-2)	-0.035798 (0.52308) [-0.06844]	0.003282 (0.01765) [ 0.18600]	0.282977 (0.42043) [ 0.67306]	-0.255484 (0.13188) [-1.93722]	-0.006632 (0.00655) [-1.01234]	-8.420209 (11.9066) [-0.70719]
ELASTICITY(-1)	-1.035515 (2.29225) [-0.45175]	0.011665 (0.07733) [ 0.15085]	5.826441 (1.84241) [ 3.16239]	-0.947148 (0.57793) [-1.63886]	-0.004566 (0.02871) [-0.15905]	11.68557 (52.1771) [ 0.22396]
ELASTICITY(-2)	-0.316762 (1.90602) [-0.16619]	0.063614 (0.06430) [ 0.98935]	6.861892 (1.53198) [ 4.47910]	-0.131880 (0.48055) [-0.27443]	0.009501 (0.02387) [ 0.39800]	59.45439 (43.3856) [ 1.37037]
MGDPG(-1)	4.772762 (24.3844) [ 0.19573]	0.414973 (0.82260) [ 0.50447]	-0.327895 (19.5992) [-0.01673]	-9.043365 (6.14790) [-1.47097]	-0.141494 (0.30540) [-0.46331]	-306.8829 (555.047) [-0.55290]
MGDPG(-2)	-6.933258 (12.8602) [-0.53912]	0.049411 (0.43383) [ 0.11389]	-3.153220 (10.3365) [-0.30506]	-4.576830 (3.24237) [-1.41157]	-0.036550 (0.16107) [-0.22692]	-81.02646 (292.730) [-0.27680]
RPCI(-1)	-0.024944 (0.02367) [-1.05395]	-0.000892 (0.00080) [-1.11670]	0.101054 (0.01902) [ 5.31230]	0.011937 (0.00597) [ 2.00042]	0.000321 (0.00030) [ 1.08336]	1.573104 (0.53872) [ 2.92008]
RPCI(-2)	0.016179 (0.04358) [ 0.37128]	0.000304 (0.00147) [ 0.20679]	-0.083588 (0.03502) [-2.38653]	0.015397 (0.01099) [ 1.40143]	0.000553 (0.00055) [ 1.01361]	1.077187 (0.99190) [ 1.08598]
C	37.40976 (101.637) [ 0.36807]	2.250053 (3.42867) [ 0.65625]	-29.93789 (81.6915) [-0.36648]	-43.59789 (25.6251) [-1.70137]	-1.473475 (1.27293) [-1.15754]	-2890.108 (2313.50) [-1.24924]
R-squared	0.986094	0.847001	0.991246	0.846420	0.833435	0.984092
Adj. R-squared	0.902658	-0.070991	0.938725	-0.075058	-0.165952	0.888645
Sum sq. resids	7.170310	0.008160	4.632216	0.455793	0.001125	3715.129
S.E. equation	1.893451	0.063875	1.521876	0.477385	0.023714	43.09947
F-statistic	11.81862	0.922667	18.87310	0.918546	0.833946	10.31037
Log likelihood	-15.74832	35.09020	-12.47147	4.919179	49.95292	-62.62497
Akaike AIC	3.833109	-2.945359	3.396195	1.077443	-4.927056	10.08333
Schwarz SC	4.446752	-2.331716	4.009839	1.691086	-4.313413	10.69697
Mean dependent	57.37333	0.833333	7.628667	0.046583	0.038652	1605.667
S.D. dependent	6.068827	0.061721	6.148041	0.460418	0.021962	129.1570
Determinant Residual Covariance		0.000000				

The concern remains that the rate of unemployment in Nigeria is still within the double digit mark! The analysis indicates that the incidence of unemployment is most acute among the youths and graduates of age group 15-24 years. These account for 46.30% of the unemployed persons in the eight metropolitan areas covered in the above mentioned study. It is closely followed by those of age group 25-34 years, recording 36.90%. Combined, the two age groups make up 83.2% of the total number of the unemployed persons in the 2005 NMB Labour market survey. Broadly, this pattern of unemployment growth may not have changed very significantly today as information from other sources tends to portray.

## **SUMMARY, POLICY RECOMMENDATIONS AND CONCLUSIONS**

### **5.1 Summary of Findings**

This study attempts to critically examine the interconnectivity among income inequality, employment and poverty reduction in the process of economic growth. Using Gini Coefficient as a measure of inequality in Nigeria the poorest 10 per cent of the population is attributed 1.6 per cent of the national welfare and the highest 10 per cent account for about 40 per cent of the welfare measures. With the national average of 0.488, majority of the states in the northern geo-political zone fell below the national average.

The decomposition of inequality shows that inequality in income distribution varies between female and male headed households. Expectedly, income inequality varies with the level of access to formal education. Thus, households where the household head had no access to formal education experienced higher income inequality. The level of income inequality is; however, lower among household in which the primary occupation of the household head is farming probably due to low diversification among the household members. The level of income inequality is equally lower among household where members belong to one social organizations or the other as this improved their social capital formation and therefore raised their welfare status. Households with access to electricity have higher income inequality since this could have assisted them in diversifying their income sources. Finally, it was found that households with access to credit were able to reduce their inequality gap since credit is expected to enhance their productive capacity.

Spatial decomposition of inequality shows that the South-East and North-Central appeared to have contributed most to the observed national income inequality with their relative contribution of 0.2248 and 0.2185 respectively. The least contribution came from the South-West geo-political zone. In the regression-based inequality decomposition, the result of the estimated consumption function shows that all the independent variables are significant at one per cent except for gender and age of household head. These two variables were excluded from the Shapley decomposition analysis. Further examination

of the relative contribution of each of the household characteristics to inequality shows that household size and geo-political zone accounted for the greater proportion of income inequality in Nigeria with their relative contribution of 55 and 29 per cent respectively.

The estimated poverty line based on Food Energy Intake and Dollar per Day for Nigeria was estimated at N21, 743 and N21, 608 respectively. Combining these two objective measures, the estimated national poverty incidence was put at 54.4, the poverty depth was estimated at 0.2188 while poverty severity was calculated to be 0.1190. Spatial analysis shows that poverty is more of rural phenomenon in Nigeria as the incidence; depth and severity were higher in the rural than the urban sector. In terms of geo-political zone, however, the highest poverty incidence was recorded for the North East while the highest poverty depth and severity was observed in the North Central. Conversely, the lowest poverty incidence, depth and severity were recorded in the South East but the highest welfare gap was observed for the South-South geo-political zone.

Analysis by household characteristics shows that poverty incidence, depth and severity in Nigeria vary with household size. In other words, the higher the household size, the higher the poverty incidence, depth and severity. Households with the household head having formal education were able to reduce the incidence, depth and severity of poverty when compared with their counterparts with no formal education. Similarly, poverty incidence, depth and severity were found to vary with household capital formation. Households whose members belong to social group and those with access to credit and electricity had lower poverty incidence, depth and severity.

The contributions of each of the six geo-political zones to poverty incidence, depth and severity followed the same pattern with the northern geo-political zones contributing more than their southern counterparts. Specifically, the highest contribution came from the North-West followed by the North Central and then the North East. In all cases, the three northern geo-political zones contributed more than 60 per cent to poverty incidence, depth and severity in Nigeria. The least contribution came from the South East geo-political zone.

The model involving growth and employment elasticity as explanatory variables for annual change in poverty incidence performs quite well in terms of the signs of the variables. The fact that the coefficient of this variable has the right sign despite its limitation as an indicator of overall employment intensity is an indication that it could be taken as support for the hypothesis of employment intensity of growth influencing the rate of poverty reduction. The result of the model involving poverty and labour market greatly emphasize human capital development as a panacea for poverty reduction as the coefficient of secondary education shows that a unit increase in secondary education enrolment will account for a significant reduction in poverty incidence in the country. The fact that the coefficients of employment in agriculture and manufacturing sectors are negative is an indication that the two sectors were not performing the expected role in the national economy.



## 5.2 Recommendations

The above analysis has important implications for development strategies and policies for accelerating growth and poverty reduction. While household's capital, employment and labour market variables emerge as significant in making growth pro-poor, it needs to be borne in mind that if treated separately from the overall development strategy, employment cannot serve as an effective route out of poverty. Employment outcomes of alternative strategies and policies must be considered as one of the major criteria in formulating them (i.e., the strategies and policies). This is particularly important when it comes to the formulation of macroeconomic policies and policies relating to specific sectors. It should be possible to integrate employment concerns into the process of formulating such policies. A pro-employment macro-economic policy regime would take into account the possible effects of macro-economic variables on the growth of sectors and sub-sectors that are by nature more labour intensive than others. Integration of employment concerns should be associated with the adoption of measures to track the employment intensity of growth to see whether growth is taking a pro-poor character.

The natural endowment of oil, economic, political and social factors will invariably play a significant role in determining the nature of the transition process as well as economic, political and social situation in the country. Due to the combination of factors involved, it is difficult to pinpoint dominant, determinant and causal factors of growth, employment and poverty trends in the country. Nonetheless, in acknowledging this, the paper sought to set aside general country-level contexts and explore more specific dynamics of the growth, employment and poverty nexus. In-depth analysis has shown that the country has experienced severe declines in output leading to generally increasing unemployment, poverty and inequality levels and decreasing wages. Thus there appears to be a clear and direct link between a fall in economic growth and a rise in poverty. Although, one might be tempted to think that the reverse link is just as clear, i.e. an increase in economic growth would 'trickle-down' and benefit the general population through a reduction in poverty, the analysis in the paper has served to prove that this is certainly the case, in the six geo-political zones of the country .

One needs only to note, that the return to positive economic growth has not been associated with a reduction in poverty. Moreover, in the set of countries where poverty incidence *has* fallen simultaneously with the revival in economic growth, the reasons behind this lie deeper than a mere overall economic improvement. In both type of scenarios one needs to observe the pattern and sources of growth as manifested in the type of employment generated in order to understand the impact that growth has had on poverty. From this perspective, in the first set of countries where growth has not led to falling poverty, the explanation is that growth has not occurred in high-productivity, so called 'employment-friendly' sectors.

In Nigeria, the return to growth has been driven by revenue from oil which has not led to expansion in employment and poverty reduction. If on the other hand, growth had been concentrated in the high-productivity industrial sector labour-productivity would most probably have increased leading to rising wages and falling poverty. In Nigeria, growth

*did* occur in the industrial sector (as a result of the epileptic power supply), there wasn't sufficiently labour-intensive production to lead to a reduction in poverty, at least not immediately. The fact that poverty did begin to fall from 1999 onwards could be an indication that there was a time lag before the benefits of growth became apparent. On the other hand employment did expand in the agricultural sector, but again this meant the occurrence of decreasing returns to scale as output in the sector continued to decline due to the low-productivity nature of the sector.

In situation, where growth *has* been associated with a fall in poverty incidence, this can be attributed to the fact that economic growth was accompanied by an expansion of employment alongside rising productivity and real wages. For instance the increase in growth was almost exclusively due to increased oil-production in the high-productivity industrial sector, leading to increased employment and labour productivity and consequently higher wages and falling poverty in the oil sector only but this can not be said of the whole country. Although growth has been relatively high and stable for more than half a decade, the experience shows that in recent year poverty incidence has risen by a noticeable amount. Coincidentally, it is also only in recent years that growth has picked up in the high-productivity industrial sector, implying an inverse link between higher growth, increased productive employment and poverty reduction. Although, the revival in economic growth is relatively recent, it appears that growth has at least to some extent occurred in the employment-intensive industrial sector and has thereby had a little poverty reducing impact. In fact, the impact on poverty appears to have been quite small, thus if growth continues to increase the impact on poverty levels should be significant. It should be noted however that there is usually a time-lag before the effects of growth are to be seen, it will be quite interesting to see what happens to employment and poverty levels in the coming years. Similarly, the near future should be interesting, as economic growth continues to grow. What will be most interesting to see is whether in the near future data on the country will become more readily available and most importantly, reliable.

From the above analysis of the linkages between economic growth, employment and poverty, one conclusion that can be drawn is that from a poverty reduction perspective, economic growth must be employment-intensive. There is no critical mass by which employment-intensive growth will reduce poverty, yet the implication of this is that growth should be concentrated in the high-productivity sectors of industry and services. However, this might be easier said than done given the legacy of *dirigisme* with large state controlled industries and given the fact that although privatization has progressed, the private sector still plays a weak role in generating employment. Due to the labour-intensive nature of small-scale private firms, policy should be directed at stimulating their growth otherwise employment will continue to lag behind growth and widespread poverty will persist. Yet, given that a significant number of those who are employed are also poor – the so-called 'working poor', employment-intensive growth alone is not sufficient in achieving significant and sustained reduction in poverty. Policy makers must also be concerned with whether the poor have the capacity, the necessary skills and access to assets, resources and services enabling them to benefit from whatever growth in employment may occur. Moreover, the kinds of activities in which the 'working poor' are

involved are often in the informal sector which, given the virtual collapse of the formal sectors, has assumed significant importance in many transition economies. Thus efforts to reduce poverty will have to focus on the informal sector, acknowledging this sector as not a problem for development, but rather as a starting point for achieving development and poverty reduction in transition countries in general.

The most effective way to reduce poverty is to make growth-induced employment accessible to the poor. In other words, poverty is most effectively reduced by the greater utilization of labour, the resource that most poor households have more of than any other resource, in a way that it creates for them entitlement to income and welfare. An analysis of the experience of the developing countries shows that rapid expansion of productive and remunerative employment has always been associated with rapid poverty reduction growth is a precondition of sustained expansion of productive and remunerative employment. For employment to alleviate poverty it must create an entitlement to income. Without economic growth, employment expansion, in the ultimate analysis, is an inefficient method of redistribution, a concealed system of unemployment insurance. Numerous cases in contemporary development experience demonstrate the futility of seeking a way out of poverty by employment expansion without the backing of adequate growth. The Philippines in the 1970s expanded employment ahead of effective demand for labour only to pay for it later in the form of extremely low output elasticity of employment. Bangladesh in the 1970s went through a similar binge of employment expansion in public enterprises, without an increase in effective demand for which a full adjustment is yet to be made. It is, however, not useful to think of growth as a process exogenous to poverty-reducing employment generation. Indeed, in most developing countries the utilization of the poor's capacity to work is an effective way to raise the rate of economic growth. For growth to be *endogenized* into the process of employment expansion for the poor, it is necessary to provide poor households with access to resources: land, other physical assets, credit and public services. It is in this sense that redistribution of land and assets can be an effective method of ensuring complementarities between high growth and rapid poverty reduction.

The experience of countries which promoted wide access of the poor to land and other resources demonstrates the validity of this claim. It should be underlined that access of the poor to assets rarely brings about an improvement in their welfare independently of enabling them to utilize more effectively their capacity to work. It is also worth noting that this kind of redistribution is far superior a method of poverty reduction than redistribution of consumption which quickly runs into resource, administrative and political constraints. Redistribution may also be a *necessary* condition of poverty reduction in cases where assets are so scarce that a high and increasing proportion of income is appropriated by their owners, thereby reducing the poverty-alleviating effect of employment-intensive growth.

For employment expansion to be an effective instrument for poverty reduction, it is necessary for the poor workers to be endowed with adequate human capital. The human capital endowment of the poor needed to be continuously updated in order to ensure that they can adjust to the changing in the composition of demand for skills which

characterizes contemporary economic development. Proper functioning of the process of poverty reduction through employment promotion also critically depends on the terms of exchange that the produce of poor's labour faces in the market. Case studies show that adverse changes in the terms of trade for small peasants and self-employed poor have often deprived them of the opportunity to escape poverty.

Ensuring high rate growth, within a framework of incentives and institutions that promote appropriately employment-intensive technology, may not generate enough head-count rate of employment creation. There may be countervailing and offsetting reduction in employment that is often unleashed by the reform for higher and more efficient growth. This is a particularly serious hazard in the age of globalization when existing systems of inefficient allocation of labour, resorted to in the past as an alternative to unemployment insurance, have to be dismantled as part of the reform for the promotion of efficiency and competitiveness. This puts a heavy additional burden of employment generation, or social protection, on the poverty-reduction strategy. Finding resources for this kind of additional employment generation, or an alternative form of social protection, poses an enormous challenge for expenditure retrenching reform in the process of which these problems emerge. The experience of China and Vietnam, and to a lesser extent South Asia, is a reminder of this danger. There are groups of poor who are at a serious disadvantage to compete for employment in the market place. They need to be helped by special measures: e.g., endowment with special skills and opportunity for work at home for the female members of poor households.

For employment expansion to be an effective instrument for poverty reduction, it is necessary for the poor workers to be endowed with adequate human capital. The human capital endowment of the poor needs to be continuously updated in order to ensure that they can adjust to the changing demand for skills labour which characterize contemporary economic development. Proper functioning of the process of poverty reduction through employment promotion also critically depends on the terms of exchange that the produce of poor's labour faces in the market. Case studies show that adverse changes in the terms of trade for small peasants and self-employed poor have often deprived them of the opportunity to escape poverty (Ravallion, 1993).

The most effective way to reduce poverty is to make growth-induced employment accessible to the poor. In other words, poverty is most effectively reduced by the greater utilization of labour, the resource that most poor households have more than any other resource, in a way that it creates for them entitlement to income and welfare. An analysis of the experience of the developing countries shows that rapid expansion of productive and remunerative employment has always been associated with rapid poverty reduction. Growth is a precondition of sustained expansion of productive and remunerative employment. For employment to alleviate poverty it must create an entitlement to income. There are groups of poor who are at a serious disadvantage to compete for employment in the market place. They need to be helped by special measures: e.g., endowment with special skills and opportunity for work at home for the female members of poor households. Careful interventions in the functioning of the labour market, with a view to protecting the weak members of the labour force, especially in an environment of

unequal bargaining power, can improve the welfare of the poor. It is, however, important to ensure that these interventions do not restrict the growth of demand for labour which is detrimental to the welfare of the poor. While growth-induced employment expansion is the most effective method of poverty reduction, it is necessary for the policy makers to recognize its limits. For the households with inadequate labour endowment, admittedly a small minority of the poor in most societies, there must be additional policy interventions, viz., income and/or consumption subsidy, to alleviate poverty.

### **5.3 Conclusions**

The present study started by attempting to identify elements of pro-poor economic growth, and argues that this can be conceptualized in terms of a virtuous circle of economic growth leading to poverty reduction via growth of employment with rising productivity, and reduced poverty creating the possibility of further increases in productivity and higher rates of economic growth. Using the Nigerian time series data, the paper empirically demonstrates the link between poverty reduction and employment intensity of growth (defined in terms of employment elasticity with respect to output). Developments that are found to make a positive contribution to poverty reduction include structural transformation of employment towards manufacturing and other non-farm sectors, education, and lowering of the dependency burden (i.e., increase in labour force participation). Based on the growth and poverty reduction experience in Nigeria the study argues that there is no invariant relationship between growth and poverty reduction. It has been demonstrated that similar growth rates can be associated with different outcomes on poverty reduction. And an examination of the experiences indicates that the patterns of growth, especially in terms of developments in employment and labour markets that take place as a result of growth, play an important role in producing such varying results regarding poverty reduction.

The experience of Nigeria also gives rise to a number of questions concerning the ingredients of pro-poor growth. The first relates to the role of agriculture. Given the large size of the population relying on this sector in many of the developing countries with high incidence of poverty, and the facts that labour productivity is lower and the incidence of poverty higher for those engaged in this sector relative to others, it has to have a prominent role in a strategy for pro-poor growth. Within the overall framework of the present study, this strategy/process has been couched in terms of a structural shift of the economy (including its employed labour force) towards higher productivity sectors capable of generating higher incomes. The empirical finding that a shift away from agriculture to higher productivity sectors is associated with a reduction of poverty does validate the importance of structural shift. This, however, does not mean that agriculture itself cannot contribute to the pro-poor growth process. Indeed, the experience of countries like Uganda and Vietnam does point out the important role that this sector can play in reducing poverty. This is particularly the case where the distribution of landholding is relatively egalitarian and crop production is based primarily on smallholders. Where production is based on large estates and hired labourers, an

important factor would be the productivity and real wages of workers. Another important factor would be the relative prices of agricultural products, especially in relation to purchased inputs, but also relative to non-agricultural products. Uganda, for example, benefited from the rise in the prices of its major crops during the 1990s; and Vietnam's agriculture also benefited from a favourable movement in its terms of trade. Structural shift within agriculture in terms of movement to higher value products can also contribute to poverty reduction. Thus, policies in support of the growth of smallholder agriculture, product diversification, and of raising productivity and real wages of agricultural labourers are important for pro-poor growth.

Having recognized the importance of growth in agriculture, it is essential to point out the importance of a structural shift of employment towards higher productivity non-farm sectors. In countries with an abundance of labour, such structural shift should involve growth of the relatively labour intensive sectors and sub-sectors, e.g., labour intensive manufactures and other non-farm activities (in both urban and rural areas). The experience of Indonesia before the Asian economic crisis (of 1998) provides a good example of high growth of the non-agricultural sectors that helped reduction of poverty. Likewise, Bangladesh, Bolivia, and Ethiopia are countries for whom the challenge is not just one of moving to a higher growth path, but also towards achieving a shift in their employment structures towards higher productivity non-agricultural sectors (Islam, 2004). But given the low base of modern manufacturing in Nigeria, rural non-farm activities need to be looked into as possible sources of higher productivity employment.

Variables on the supply side of the labour market that can have significant influence on poverty include education and skills. Investment in human capital formation plays a major role in boosting economic development that could benefit the poor. One of the principal means of enhancing their ability to integrate into the growth process and their productivity is to endow them with education and skills. Analysis based on household level data does show that poverty and education are inversely correlated. Also, a comparison of the experience of the East Asian countries who were more successful than their South Asian counterparts in terms of growth and poverty reduction shows that the former, in general, performed better in terms of human capital as well (Islam, 2003a). Investment in human capital, both in terms of education and skill training, therefore, needs to be an important ingredient in a country's strategy for pro-poor growth.

The natural endowment of oil, economic, political and social factors have invariably played a significant role in determining the nature of the transition process as well as the current economic, political and social situation in the country. Due to the combination of factors involved, it is difficult to pinpoint dominant, determinant and causal factors of growth, employment and poverty trends in the country. Nonetheless, on acknowledging this, the paper sought to set aside general country-level contexts and explore more specific dynamics of the growth, employment and poverty nexus.

In-depth analysis has shown that the country has experienced severe declines in output leading to generally increasing unemployment, poverty and inequality levels and decreasing wages. Thus there appears to be a clear and direct link between a fall in

economic growth and a rise in poverty. Although, one might be tempted to think that the reverse link is just as clear, i.e. an increase in economic growth would 'trickle-down' and benefit the general population through a reduction in poverty, the analysis in the paper has served to prove that this is certainly the case, in the six geo-political zones of the country. One needs only to note, that the return to positive economic growth has not been associated with a reduction in poverty. Moreover, in the set of countries where poverty incidence *has* fallen simultaneously with the revival in economic growth, the reasons behind this lie deeper than a mere overall economic improvement. In both type of scenarios one needs to observe the pattern and sources of growth as manifested in the type of employment generated in order to understand the impact that growth has had on poverty. From this perspective, in the first set of countries where growth has not led to falling poverty, the explanation is that growth has not occurred in high-productivity, so called 'employment-friendly' sectors. In Nigeria, the return to growth has been driven by revenue from oil which has not led to expansion in employment and poverty reduction. If on the other hand, growth had been concentrated in the high-productivity industrial sector labour-productivity would most probably have increased leading to rising wages and falling poverty. In Nigeria, growth *did* occur in the industrial sector (as a result of the epileptic power supply), there was not sufficiently labour-intensive production to lead to a reduction in poverty, at least not immediately. The fact that poverty did begin to fall from 1999 onwards could be an indication that there was a time lag before the benefits of growth became apparent. On the other hand employment did expand in the agricultural sector, but again this meant the occurrence of decreasing returns to scale as output in the sector continued to decline due to the low-productivity nature of the sector.

In situation, where growth *has* been associated with a fall in poverty incidence, this can be attributed to the fact that economic growth was accompanied by an expansion of employment alongside rising productivity and real wages. For instance the increase in growth was almost exclusively due to increased oil-production in the high-productivity industrial sector, leading to increased employment and labour productivity and consequently higher wages and falling poverty in the oil sector only but this can not be said of the whole country. Although growth has been relatively high and stable for more than half a decade, the experience shows that in recent years poverty incidence has risen by a noticeable amount. Coincidentally, it is also only in recent years that growth has picked up in the high-productivity industrial sector, implying an inverse link between higher growth, increased productive employment and poverty reduction. Although, the revival in economic growth is relatively recent, it appears that growth has at least to some extent occurred in the employment-intensive industrial sector and has thereby had a little poverty reducing impact. In fact, the impact on poverty appears to have been quite small, thus if growth continues to increase the impact on poverty levels should be significant. It should be noted however that there is usually a time-lag before the effects of growth are to be seen, it will be quite interesting to see what happens to employment and poverty levels in the coming years. Similarly, the near future should be interesting, as economic growth continues to grow. What will be most interesting to see is whether in the near future data on the country will become more readily available and most importantly, reliable.

From the above analysis of the linkages between economic growth, employment and poverty, one conclusion that can be drawn is that from a poverty reduction perspective, economic growth must be employment-intensive. There is no critical mass by which employment-intensive growth will reduce poverty, yet the implication of this is that growth should be concentrated in the high-productivity sectors of industry and services. However, this might be easier said than done given the legacy of *dirigisme* with large state controlled industries and given the fact that although privatization has progressed, the private sector still plays a weak role in generating employment. Due to the labour-intensive nature of small-scale private firms, policy should be directed at stimulating their growth otherwise employment will continue to lag behind growth and widespread poverty will persist. Yet, given that a significant number of those who are employed are also poor – the so-called ‘working poor’, employment-intensive growth alone is not sufficient in achieving significant and sustained reduction in poverty. Policy makers must also be concerned with whether the poor have the capacity, the necessary skills and access to assets, resources and services enabling them to benefit from whatever growth in employment may occur. Moreover, the kinds of activities in which the ‘working poor’ are involved are often in the informal sector which, given the virtual collapse of the formal sectors, has assumed significant importance in many transition economies. Thus efforts to reduce poverty will have to focus on the informal sector, acknowledging this sector as not a problem for development, but rather as a starting point for achieving development and poverty reduction in transition countries in general.



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