# Economic Growth and Poverty Reduction in Nigeria: An Empirical Investigation

Friday S. Ebong[1]*          Fidelis O. Ogwumike[2]

**Abstract**

Economic growth is said to be pro-poor if the poverty measure adopted falls with increased growth rate. Poverty researchers have investigated this phenomenon mainly in the context of income poverty. The fact that poverty goes beyond income has received little attention. This study appreciates the multidimensional nature of poverty. It sees poverty in its non-income dimension, highlights the concept of pro-poor growth, and also empirically analyzes if economic growth in Nigeria is, or could be, pro-poor. In our empirical analysis a vector autoregressive model was formulated and estimated within an error correction framework. Within this framework, we have analyzed annual time series data to capture, quantitatively, the effects on human-capital poverty of economic growth and other control variables, both in the short- and long-term. Results showed that in the medium-to-long term, agricultural development raised human capital poverty, while developing the other sectors of the economy reduced it. In the short-term, public capital expenditure on social services, including credit to the agricultural sector, and agricultural development generally, showed a potential to reduce poverty. Public capital expenditure on economic services, growth in the non-agricultural sector of the economy, and increased urbanization intensified the incidence of human capital poverty. These results indicate that government expenditures on human capital development through the social services sector tend to reduce human-capital poverty. They underscore the desirability of adequate capital expenditures on education and health; and also suggest the need for enhancing the pace of rural transportation with a view to creating non-agricultural employment opportunities and minimize the rate of urban growth.

**Key words:** Economic growth, Pro-poor growth, Human-capital poverty, Public expenditure, Urbanization.

## 1. INTRODUCTION

Until recently, development efforts concentrated mostly on increasing the growth rate of Gross Domestic Product (GDP). The latter was expected to ultimately "trickle" downwards. Economic wellbeing in general, and hence poverty alleviation, was largely perceived in terms of high rate of per capita GDP. However, excessive focus on high GDP growth rates as a remedy for extreme poverty has been seriously questioned (see Fleurbaey 2009). There is a growing consensus among development economists that growth alone is not enough to reduce poverty. It is argued that widespread illiteracy, growing vulnerability to hunger and diseases, environmental deteriorations, among others, affect human welfare independently of income (Streeten, 1994; World Bank, 1990). It is argued that growth can contribute most to poverty alleviation when it expands employment as well as the productivity and wages of the poor; and when public resources are spent on human and physical infrastructure development.

This perception of the character of economic growth obviously looks beyond the earlier trickle down doctrine and seeks to achieve broad-based and sustainable poverty reduction. Emphasis is on the strengthening of capabilities, especially of the poor, and an increased focus on the non-income dimensions of poverty (see Sen, 1993). This is the essence of pro-poor growth and it calls for a development strategy which makes meeting the needs of majority in the population its central objective. Empirical studies show that high levels of poverty can have a negative impact on overall economic growth rates. They exacerbate social tensions, limit the functioning of markets and adversely affect the employability of the (extremely) poor and disadvantaged (see Chen and Ravallion 2001).

However, as important as this shift in developmental thinking may be, there is still much to be done in defining what pro-poor growth is, how to assess and measure it, and more importantly, how to translate this knowledge into effective policy making. These raise certain issues: the need for an alternative, non-income, measure of achievements in development efforts; and the need to deliberately empower the citizenry (the poor and the non-poor alike) as a means of ensuring massive participation in the development process (Oturupane, Glewwe and Isenman 1994).

---

[1]  Department of Economics, University of Calabar, Calabar, Nigeria
[2]  Department of Economics, University of Ibadan, Ibadan, Nigeria
*    E-mail of the corresponding author: frebong@yahoo.co.uk

Regarding the issue of measurement, several poverty measures are built around household data usually obtained through large-scale budget surveys. Thus their data requirements are too demanding a burden for Nigeria's fledging data base. Attempts have been made to quantify more precisely some of the items that are not normally included in conventional measures of GDP - though believed to constitute important gaps between GDP (as presently compiled) and some wider concept of "economic welfare". It is reasoned that just as GDP per capita serves as a rough gauge of the level of welfare, estimates of levels of achievements in human capabilities development could also serve a similar purpose. Three composite indicators: the physical quality of life index (PQLI) by Morris (1979), the Human Development Index (HDI) and the Human Poverty Index (HPI) by the United Nations Development Programme (UNDP 1990, 1997), seek to overcome the above limitation. Particular attention has been given to using measures of health and education as well as welfare indicators (in addition to GDP per capita). Thus, the World Bank and the United Nations Development Programme (UNDP) have constantly highlighted such social, non-economic measures of development as adult literacy rate, life expectancy at birth, under-five mortality rate, daily per capita calories in take, among others (see also Mazumdat 1999).

However, these composite indicators have weighting problems. For instance, the UNDP's HPI gives equal weights to the three indicators: real GDP per capita (measured at purchasing power parity in constant prices), life expectancy at birth, and educational attainment measured by adult literacy rate (two-third weight) and combined primary, secondary and tertiary enrolment ratios (one-third weight). Though these indices are valuable in extending the economic concept of welfare, they are not very useful in identifying and priotizing the channels through which specific strands of public interventions affect poverty[1].

This paper recognizes the fact that poverty goes beyond personal income. It appreciates its multidimensional nature. Such a broad perception of poverty must therefore include the roles of access to, and the availability of public facilities (healthcare, education, potable water, housing, electricity, among others) in its alleviation. These are themselves veritable inputs into human capital formation (see Besley 1997). However, every country has only one set of social indicators for both her poor and non-poor. Therefore, the level of a given social indicator usually reflects how well or otherwise a given society has met the needs of the citizenry which is expressed by that particular indicator. Consequently, we speak of 'the human capital poor,' recognize the human capital poverty, and define it as an individual's inability or lack of opportunities to attain minimum levels of human capital formation. Within the context of human capital poverty, therefore, we seek to highlight in this paper the concept of pro-poor growth and also empirically analyze if economic growth in Nigeria is, or could be, pro-poor. The rest of the paper is organized into six sections. In the next section is a brief review of the literature, comprising the conceptual and theoretical issues as well as the empirical evidence. In section three, we present highlights of the country's growth performance and the poverty problem by reviewing levels of some of its indicators. In this section we also briefly review measures adopted over the years to redress the poverty problem and the degree of their effectiveness. Sections four and five contain the analytical framework and empirical lessons from analyzing our data. The paper ends in section six with a summary and coclusion.

## 2. LITERATURE REVIEW

### 2.1 The Concept of Poverty

While attempts at arriving at a single, universally acceptable definition of the concept of poverty are as yet unsuccessful, few perspectives of the concept have emerged. We group these into;

- the income/consumption perspective that a person is poor if and only if his/her income level is below a specified poverty line; 1dollar or 2 dollar per day (see Ogwumike, 1991, 2001);
- the basic needs perspective - that poverty is the deprivation suffered due to lack of material requirements for meeting minimally acceptable levels of human needs. These needs include, but are not limited to, food, healthcare, housing, education, employment and participation, (see ILO, 1976);
- the capability perspective - that poverty represents the absence of some basic capabilities to function[2]. Such functionings vary from the physical ones (being well-nourished, adequately clothed and sheltered, and the avoidance of preventable morbidity) to such more complex social achievements as partaking in the life of the community to which one belongs (Sen, 1998). Living valuable and valued lives depends, for example, on the individual's scope for participation in taking decisions that affect his/her life and the lives of members of the community to which he/she belongs (see Clark 2005); and
- voice of the people – which has to do with how the poor themselves perceive their situation. This varies with geographical areas and groups. For instance, in both rural and urban Ghana, men associate poverty with lack of

---

[1] See Sagar and Najain (1998) for a critical review of the HDI.
[2] The capability approach defines poverty as a deprivation of capabilities, as a lack of freedoms people value and have reason to value (see also Alkire 2005, 2007).

Journal of Economics and Sustainable Development
www.iiste.org
ISSN 2222-1700 (Paper) ISSN 2222-2855 (Online)
Vol.4, No.7, 2013

material assets, while women define it in terms of food security. In Nigeria, poverty is associated with lack of dignity, status, security, and hope (see Ajakaiye and Olomola, 2003; Ariyo and Jerome, 2005).

In this paper, we define poverty as the inability or lack of opportunity to attain maximum level of human capital formation. Defining poverty this way has some practical advantages. With a relatively small data set containing no income data it is easy to identify indicators of human capital poverty and its correlates. In contrast, it is difficult and time-consuming to estimate household income accurately, especially in developing countries. Moreover, the use of income as the sole criterion for defining poverty seems inappropriate and largely irrelevant in the Nigerian environment where poverty-oriented policies are not primarily policies of income maintenance. This is not discounting the relation of cash income to living expenses, though rarely an over-riding determinant of levels of living (and hence poverty levels) in the developing countries.

2.2 The Concept of Human Capital

The concept of human development is necessarily broad. Attempts to narrow it down and provide some indicators of its relative state usually revolve around measures of life expectancy, literacy rates, nutritional status, infant mortality rates or other health status indicators. In the literature, the focus is either on fairly general "state of knowledge" or more narrowly on "education". Romer (1986) and the international trade literature consider knowledge more in terms of a set of blueprints or the state of available technology, and are more prone to think of it as being embodied in machinery than in human beings. Lucas (1988) specifically sees it in terms of investment in formal education and training, while Sen (1997) sees it as human capability. Empirical studies of the contribution of human capital to development define it as either the level of literacy (Romer, 1989); primary, and secondary school enrolment rate (Barro, 1991, 1989);' the population's average number of years of school attendance (Barro and Lee, 1994). However, Mankiw, Romer and Weil (1992) use the percentage of working-age population in secondary schools as a proxy of the rate of investment in human capital. More elaborate attempts to estimate the human capital stock by combining labour force and productivity data have relied on cross classifications of populations by years of schooling. In this last approach, however, an attempt is made to incorporate work experience into the estimation of human capital stock (as in Arrow, 1962: Galor and Moav. 2004; and McGillivary 2005).

2.3 The Concept of Pro-Poor Growth

Common emphasis when discussing pro-poor growth is that growth should expand opportunities for and capabilities of the poor so that they can participate more, and benefit more, from economic activities (Kimenyi 2006). As a concept, **p**ro-poor growth stems from an attempt to marry together the twin objectives of enhanced growth and greater equity. It seeks to bring together two sides of an ongoing and unresolved debate on whether development efforts should give priority to growth or to distributional issues. Broadly defined, pro-poor growth is growth that leads to significant reductions in poverty (OECD, 2006 and UN, 1998). However, issues as to what constitute a significant reduction in poverty and how much must the poor must benefit from growth for the latter to be considered pro-poor are as yet unresolved(see also Kraay, 2006).

Attempts to give analytical and operational contents to the concept have yielded two broad definitions of pro-poor growth. The first definition basically requires that the income share of the poor in the population should increase before the growth pattern is regarded as pro-poor. A simpler version of this definition derives from a relative concept of inequality, and simply states that growth is pro-poor if the growth rate of income of the poor is greater than the population's average (White and Anderson, 2000). Here, it is expected that relative inequality would fall with economic growth whenever growth is pro-poor. The relative definition of pro-poor growth compares changes in income of the poor with changes in the incomes of the non - poor. Accordingly, growth is 'pro-poor' if the incomes of the poor grow faster than the incomes of the population as a whole. In other words, for growth to be pro-poor on this count, income inequality must fall. A more radical criterion (also proposed by White and Anderson, 2000) requires that the share of the poor in the increased income is at least as large as their population share. Another version of this definition is due to Kakwani and Pernia (2000) who compare the changes in poverty due to growth alone (i.e. holding inequality constant) with changes in poverty that take into account the actual changes in inequality. They name the ratio of these two elements the pro-poor growth index; and an episode would be considered as pro-poor when the index is greater than one (i.e. when inequality falls).

However, in an operational context, this definition of pro-poor growth has certain limitations. First, pro-poor growth under this definition would be equated with inequality reducing growth. However, by focusing so heavily on inequality a package of policies seeking an outcome that is consistent with this definition could lead to sub-optimal outcome for both the poor and non-poor households. Second, this definition might favour public sector interventions that reduce inequality regardless of their impact on growth. While the issue of reduction in inequality may be welcome and even as a policy objective, it is clear that a disregard for the impact of such actions on growth is likely to be of limited use operationally.

There is also the absolute definition of pro-poor growth which considers only the incomes of the poor. According

to this definition, how 'pro-poor' growth is should be judged by how fast on average the incomes of the poor are rising (Ravallion and Chen 2003). This definition of pro-poor growth is closely related to the speed at which absolute poverty is being reduced. If the rate of pro-poor growth accelerates, then all standard measures of income poverty fall faster. In other words, if the incomes of the poor grow faster, this would lead to a more rapid reduction both of the extent of poverty (as measured, for example, by the proportion of people living on less than $1 a day) and of the depth of poverty (how far most poor people are below the poverty live). This definition focuses entirely on the link between poverty and growth in measuring pro-poor growth. The definition considers a growth episode as pro-poor if poverty falls regardless of the developments on the inequality front. Thus growth will be pro-poor except when the income of the poor is stagnant or declines, leading to an increase in the poverty measure. In terms of an index due to Kakwani and Pernia (2000), growth will be pro-poor when the index is greater than zero. Ravallion and Chen (2003) have also proposed a measure of pro-poor growth (linked in this case to the Watt's index).

In practice however, this is likely to be less of an issue because, in general, countries which experience high growth rates over a sustained period of time have typically reduced poverty dramatically. However, which of these two definitions of pro-poor growth is preferable depends on one's objectives. If the objective is to reduce absolute poverty, the absolute definition is evidently better.

2.4 The "Structures" Theory of Poverty

According to this theory, the economic system is structured such that the poor lag behind regardless of how competent they may be (Chubb and Moe, 1996). The political system, on the other hand, is seen as constituting another barrier making the interests of the poor not to count and their participation either impossible or deceptive. A basic reason is that the poor lack influence in the political system to use in mobilizing economic benefits or justice. Another category of system flaws against the poor arises when groups of people are stigmatized on account of race, gender, disability, religion or other groupings. This is social exclusion which makes them to have limited opportunities regardless of personal capabilities[1]. However, racial, ethnic, linguistic, religious and other cultural characteristics have, of course, been well recognized as enduring bases of undue exclusion, discrimination, inequality and, hence, poverty. There is now increasing evidence that changing economic conditions since the 1980s, together with economic restructuring of mid-1980s, and not cultural construction per se, may be creating the said constraining conditions. This theory of poverty is in consonance with poverty as defined in this paper.

2.5 More Recent Theories

More recent synthesis of earlier ideas on poverty blames theoretical-ideological divide for the poverty menace. The traditional argument was that highly unequal distributions were necessary for generating rapid growth. Since GNP growth derives directly from national income saved, a highly unequal income distribution in favor of the rich would lead to more savings and faster growth.

The World Bank, on the other hand, appears to have built its theory of poverty around the dimensions highlighted by the poor themselves. These include:

- lack of income and assets to meet basic necessities;
- sense of voicelessness and powerlessness; and
- vulnerability to adverse shocks, linked to inability to cope with these shocks themselves (World Bank 2001: 34).

The Bank takes the economic concept of "assets" as a starting point in understanding the determinants of poverty. To this end, assets are classified into human assets (e.g. capacity for human labor, skills and good health); natural assets (e.g. land); physical assets (e.g. access to infrastructure); financial assets (e.g. savings and access to credit); and social assets (e.g. network of contacts and reciprocal relations). The poor generally lack most, if not all, of these assets. It is obvious; therefore, that poverty could be perceived in terms of various kinds of factors. These include economic, social, political and natural factors. Some of these may be categorized as institutional factors. There are also the geographic, technological, and cultural dimensions and variables. These various factors often work together to cause and sustain poverty or affluence. However, this paper stresses the lack of human assets.

2.6 Human Capital and Economic Growth

The human capital of a country is synonymous with the knowledge and skills embodied in that country's labor force. The quality of the labor force, in terms of its education, health, and nutrition status, is considered a part of human capital (see Lucas, 1989; Romer, 1989).

---

[1] Social exclusion is a denial of membership and participation in community or social life to certain people for reasons of their individual or group characteristics. For example, refugees, migrants, and guest workers may be denied citizenship and its rights.

Endogenous growth models have shown that human capital accumulation can be an important source of long term growth – either because it is a direct input into research (Romer, 1990) or because it offers some positive externalities (Lucas, 1988). In the Lucas model, human capital is allowed to enhance the productivity of both the recipients of such capital and the society at large.

This literature highlights the endogenous determination of technical progress, and considers technology diffusion one of the most important factors in explaining long-term growth. However, this will involve some catching-up, in terms of both the new technology and the capacity to absorb information on it. This absorptive capacity is known to be directly related to the human capital stock a country possesses (see Barro, 1999). This then establishes some link between human capital accumulation and economic growth. A well developed human capital base is, therefore, decisive in the economic fortunes of a country (see also Cohen. and Soto, 2007).

2.7 Empirical Evidence

With respect to the relationship between economic growth and poverty, the going thinking is that growth generally benefits the poor as much as everyone else (Dollar and Kraay, 2001). In that case economic growth should be both necessary and sufficient to reduce poverty. However, if economic growth tends to increase income (and asset) inequality, and if these higher levels of inequality ensure that economic growth benefits the rich rather the poor, then the best way to reduce poverty would be to first tackle the considerable income and asset inequalities in the affected country. And human capital development has been suggested as one way of doing this. Deciding which of these positions is correct is critical in devising effective poverty alleviation programs and policies (see also Klasen 2008; Li and Zou 1998).

There is a general agreement in the literature that growth is necessary but not sufficient for poverty reduction. Ravallion and Datt (2002) among others, are therefore of the opinion that for growth to have some meaningful impact on poverty, that growth must occur in sectors from which a large proportion of the poor derive their livelihood. In Nigeria, as in other developing countries, poverty is too pervasive to be reduced significantly by redistributing existing resources. So growth is indispensable. But such a growth is expected to, but may not, trickle - down to those at the bottom of the income distribution. This may not be the case unless growth is labor intensive in character, thus generating a strong demand for labor, given since most of the poor have only their labor to sell (see also Ghura,.Leite and Tsangarides, 2002).

The empirical literature strongly suggests that more rapid GDP growth is associated with more rapid poverty reduction, i.e., "growth is good for the poor". Any shifts toward increased inequality have not been known to dominate the positive impact of more rapid growth on poverty reduction. Several studies are privy to this consensus. Roemer and Gugerty (1997) find that economic growth benefits the poor in almost all countries in which substantial growth takes place. They also find that open economies have been more successful at reducing poverty than countries that close themselves to international trade and exchange. Applying cross-country regression analysis to a data set that covers over four decades and for 80 countries, Dollar and Kraay (2000) show that, on average, incomes of the poor rise one-for-one with overall growth. In a later study, Dollar and Kraay (2001) examine the extent to which the poorest in society (i.e. those in the bottom fifth of the income distribution of a country) can benefit from economic growth. They empirically investigate the relationship between overall income growth and growth in the average incomes of the poor using a large sample of developed and developing countries. They find that incomes of the poor rise proportionately with (overall) average incomes, i.e. the general relationship between growth of the income of the poor and growth of the (overall) mean income is one-to-one. On a more detailed examination of this finding, they discover that it holds across regions, time periods, growth rates, and income levels; and is robust to controlling for possible reverse causation from incomes of the poor to (overall) average incomes.

These findings contradict a number of popular ideas about the poverty-growth nexus. In particular, growth of income of the poor does not appear to respond systematically to a number of supposedly "pro-poor" policies (including formal democratic institutions and public expenditure on health and education). They again affirm that although growth is not all that is needed to improve the lives of the poor, it generally does benefit the poor as much as everyone else.

Critics of the doctrine of a strict focus on growth promotion as a poverty reduction strategy contradict these findings. They claim that the benefits of growth tend to reach the poor with long lags. In that case, and not notwithstanding possible negative impacts on growth, the government should intervene directly in improving the lives of the poor strata of the society. These have none or only very few productively useable resources apart from their usually unskilled labor which itself are often very adversely affected by hunger, malnutrition, and diseases. Experience shows that the poor, in general, do not have as much access to these public goods and services as other groups do (World Bank, 1990).

The conclusion that high growth rate is not a sufficient condition for poverty alleviation has become even more relevant as access to such necessities as health services and education, themselves critical factors in the poverty

alleviation milieu, cannot be guaranteed merely by raising levels of personal income.   El-laithy, Lokshhin and Barneji (2003) assess changes in poverty and inequality in Egypt between 1995 and 2000 based on the 1995/96 and the 1999/2000 household expenditure survey data.   Using household-specific poverty lines that account for the differences in regional prices as well as consumption preferences, size and age composition of poor households, they find the redistribution effect generally weak, and more than the growth effect. The pattern of distribution is also found to vary within regions, with the poorest households in Lower Egypt actually getting proportionately larger shares of expenditure growth. They observe that in spite of the positive relationship between economic growth and poverty in Egypt, many of the poor were not affected by the substantial growth of the preceding decade.

Aigbokhan (2000) investigates, among other things, changes in Nigeria's profiles of poverty and welfare as well as the causes of poverty among males and females. Based on national consumer survey data sets for 1985/1986, 1992/1993 and 1996/97 and a consumption-based poverty line (derived by the food energy intake method), he finds some evidence of increased poverty,   in spite of some evidence of some positive real growth. His study suggests that the so-called "trickle-down" phenomenon, underlying the view that growth improves poverty (and inequality) is not borne out by the data sets used in the study.   For this he suspects the nature of the growth pursued (oil and mining sub-sectors driven) and the macroeconomic policies that underlie it.   He therefore recommends that attention be paid to such areas as policy consistency, rather than reversals; policy consciousness of the need to ensure the use of the main assets owned by the poor (human capital); and the provision of socio-economic infrastructural facilities, in view of the widely acknowledged inverse relationship between educational achievement and poverty.

## 3. TRENDS IN POVERTY AND ECONOMIC GROWTH IN NIGERIA

3.1 Poverty in Nigeria

In the 1970s, the human capital poor averaged 18.8 million per annum. Their number rose gradually through the 1980s to a peak of 19.95million, but fell to an annual average of 19.20million in the 1990s. Between the year 2000 and 2009, it averaged   20.42million annually (see table 1). Reductions in the number in poverty were marginal between 1986 and 2005. However, there has been a rising trend since 2006 (see fig.1 also). Whatever happens to growth rates in aggregate output (GDP), it is relevant to review the trend in per capita income which is considered a "crude" measure of welfare.   Per capita GDP exhibited a picture similar to that of the poverty trend. It stagnated between 1976 and 1980 at an annual average of N521.00. It has been making marginal improvements since the 1990s peaking at N159715.94 in 2009 from N3170.00 in 1991. Declining per capita income is partly explained by the rapid growth in population (estimated at an annual rate of 2.1 per cent) and the depreciations of the naira exchange rate.

**Table 1: Poverty and Economic Growth in Nigeria, 1970-2009**

| Year | Number Poor (m) | GDP Growth Rate (%) | GDP Agriculture (% of Total GDP) | Growth Rate of Per Capita GDP (%) |
|---|---|---|---|---|
| 1970-1979 | 18.81 | 24.30 | 0.025 | 12.03 |
| 1980-1989 | 19.95 | 25.10 | 0.034 | 11.06 |
| 1990-1999 | 19.20 | 1.73 | 0.034 | 2.06 |
| 2000-2009 | 20.42 | 1.03 | 0.033 | 1.39 |

**Source: Computed by the authors**

3.2 Economic Growth Performance

The compound growth rate of GDP was 24.30 percent in the 1970s. It rose to 25.10 percent in the eighties. However, GDP growth rate has been in the decline since the 1990s; plunging to as low as 1.73 percent in the 1990s and 1.03 percent since year 2000 (see figure 2). The agricultural sector is where most of the poor derive their livelihood. Their raw (unskilled) labour may eclipse them completely from opportunities to eke out a living from other sectors of the economy, but not in this sector. But the absorptive capacity of this sector has been suspect over the years. Agricultural GDP to total GDP during the period under review stayed at an annual average of 0.03 percent since the 1970s. As a percentage of GDP, it did not make an impressive impact despite its rising trend in absolute values since the 1990s (see figure 3 also).

www.iiste.org

IISTE



FIG. 1 THE HUMAN CAPITAL POOR
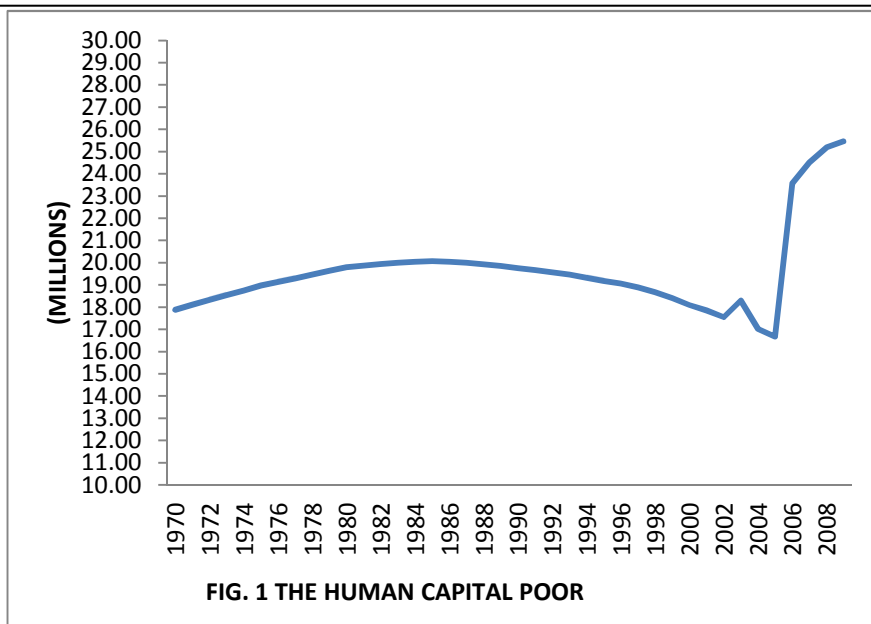
**Source: Computed by the authors**

The measures introduced in Nigeria to alleviate poverty were targeted at employment generation, provision of basic needs as well as the promotion of integrated rural development and initiatives for community development. Since 1999, the poverty challenge in Nigeria has remained a top contender for government's attention. Some of the government programmes targeted at poverty alleviation have included Poverty Alleviation Programme (PAP)[1], the National Poverty Eradication Programme (NAPEP), and the National Economic Empowerment and Development Strategy (NEEDS) - with counterparts at the State (SEEDS) and Local Government (LEEDS) levels.



FIG. 2-PER CAPITA GDP
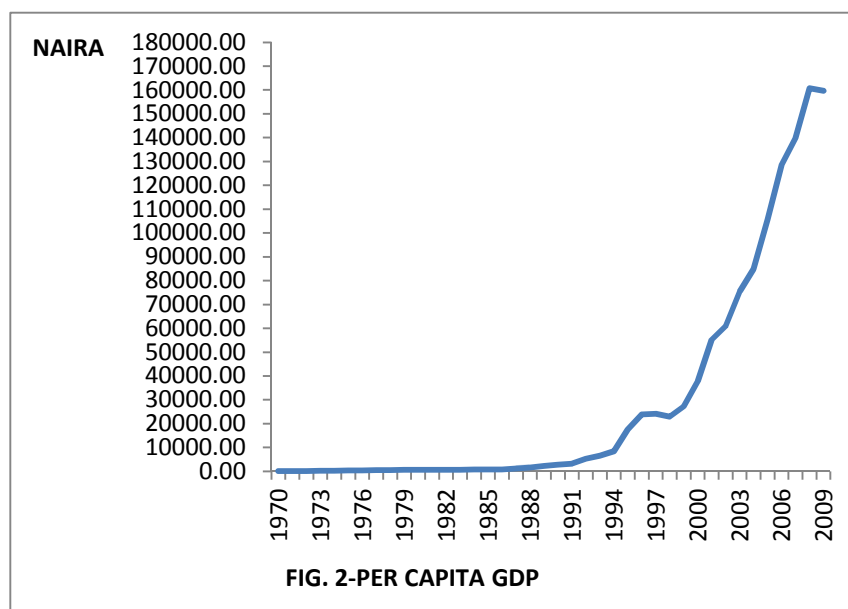
**Source: Computed by the authors**

However, the programmes have appeared too paternalistic, hardly taking into consideration the preferences of the target group. Also, it does not seem that considerations were ever given to prospects of effective alternative approaches and the fact that the resources of government are inexhaustible. Beyond these is the fear of regime dependence and hence the transitory nature of the programmes. Besides, many of the programmes were designed

---

[1] PAP later gave way to Poverty Eradication Programme (PEP) owing to the need to improve participation for sustainability, effective coordination at all levels of government, and proper focusing.

under the erroneous assumption that the poor are a homogeneous lot to be subjected to across-the-board treatments in when it comes to alleviating their poverty. For these reasons, these intervention programmes have under-achieved the intended results.



**FIG. 3 AGRICULTURAL GDP**
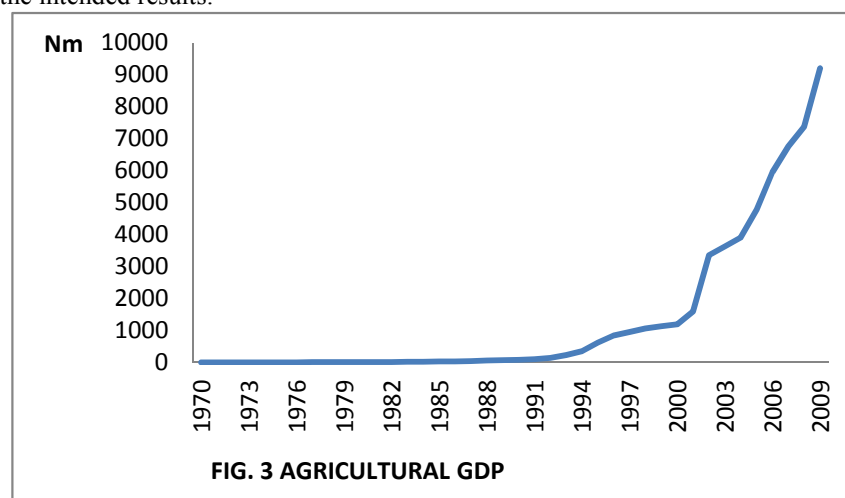
**Source: Computed by the authors**

## 4. ANALYTICAL FRAMEWORK

### 4.1 The Model and Data

This is a human-capital anchored study of the growth approach to tackling the poverty problem in Nigeria. In the context of pro-poor growth, economic growth is expected to be achieved both directly through investments in physical capital and indirectly through investments for mass improvements in the quantity and quality of human resources. Public investments to develop human resources are expected to feed through the labour-productivity enhancing roles of improved literacy (and health) to prepare the poor to take due advantage of the beneficence of growth. As noted ealier, it is not only aboutoverall economic growth, but growth in those sectors of the economy from which most of the poor earn their living.

To investigate the nature of the impact economic growth has made on poverty in Nigeria, we adopt the following general specification:

pov = (gdpr, gdpa, cragr, econc, socc, urbn,u)
  where;
      pov = poverty measure
         gdpr = non-agricultural gross domestic product
         gdpa = agricultural gross domestic product
         cragr = credit to the agricultural sector
         econc = economic expenditure (capital), excluding
         socc = social expenditure (capital)
         urbn = urban population as a percentage of total population
         u = the residual term

This equation expresses pov (poverty) a function of national output, but provides for an examination of the role the agricultural sector may be playing vis-à-vis poverty in Nigeria. It also recognizes other determinants of poverty whose effects are captured by public capital expenditure on social (socc) and economic (econc) services as well as credit to the agricultural sector (cragr) and extent of urbanization (urbn). Gross domestic product (GDP) is treated here as an indicator of economic performance. It is and divided into the part due to agriculture (gdpa) and that due to other sectors of the economy (gdpr). The human capital poor (pov) is measured by the size of the economically active population that has no 'education' at all. Where the affected country's data-base permits, this should ideally be measured as the product of this population and the prevailing illiteracy rate. In this study labour force is used as a proxy for the economically active population because of lack of data on the latter.

Annual time series data from 1970 to 2009 have been used in this study. They were sourced from both domestic and international sources. Macroeconomic data were essentially economic performance indicators (the GDP), and public capital (economic and social) expenditure. These were extracted mainly from the Central Bank of Nigeria's Statistical Bulletin (various issues). No one source was found that could supply data on the country's literacy levels over time and any other social indicator for that matter. Several international sources were therefore consulted to compile annual literacy (illiteracy) rates. These included, The World Bank's World

Tables (1994) and African Development Bank's African Development Indicators (2005); World Development Indicators (2009) and the data base of the Food and Agricultural Organization (FAO). Some domestic sources were also consulted both to cross-check external sources and to fill gaps in those years where the external sources reported no data. Such internal sources included the CBN's Annual Report and Statement of Account (various years) and in-house publications of the Ministries of Education, Health, and Labour and Productivity.

4.2 Method of Analysis

To avoid biased and inconsistent results due to spurious regressions, time series properties of the variables were investigated. In particular, we conducted tests for the absence of unit roots (stationarity) using the ADF procedure. We also tested for cointegration using the Engel-Granger (1987) two-step procedure to see whether the variables can be used together to give meaningful results in the long-run[1].

When the residuals of non-stationary time series are to be correlated with their own lagged values, a standard assumption of ordinary least squares (OLS) theory, that disturbances are not correlated with each other, is violated. Hence, OLS estimation of such series is biased and inconsistent, and standard errors computed with such random walk variables are generally underestimated. In such case, OLS is no longer efficient among linear estimators.

This study employs a vector autoregressive (VAR) technique that is commonly used for forecasting systems in inter-related time series and for analyzing the dynamic impacts of random disturbances on a system of variables. This method is well suited for examining the channels through which a given variable operates. On the other hand, the VAR approach sidesteps the need for structural modeling by modeling the endogenous variables as a function of its lagged value. Since only lagged values of the endogenous variable appear on the right hand side of the equation, the issue of simultaneity does not arise. In fact, the strength of the VAR model lies in its ability to incorporate the residual from the past observation into the regression for the current observation. The approach also has the advantages of being easy to understand, and general applicability. It is also easily extended to non-linear specifications and models that contain endogenous right hand side variable. The coefficient may be interpreted in the usual manner, but the results involving the residuals differ, however, from those computed under OLS setting.

The transformation of the model to logarithmic form helps to achieve two objectives:

- to capture nonlinearity of the model. For instance, most studies that examine the relationship between public expenditure and health status have found a nonlinear relationship between mortality and income; and
- to allow for comparisons with existing findings. The regression results provide elasticities, which are unit-free and are assumed to be constant over time.

## 5. THE EMPIRICAL LESSONS

5.1 Descriptive Analysis

The correlations matrix (Table 2) provides the opportunity to assess extent of multicollinearity between the variables of the model before the multiple regression analysis. Figures in the first column indicate the correlations between the dependent variables and the respective explanatory variables. The other columns contain the correlations of the explanatory variables with themselves and with each other.

**Table 2: Correlation Matrix of Poverty and its Determinants**

|  | LNCRAGR | LNECONC | LNGDPA | LNGDPR | LNHKPOV | LNSOCC | LNURBN |
|---|---|---|---|---|---|---|---|
| LNCRAGR | 1.000 | 0.016 | 1.000 | 0.001 | -0.216 | 0.035 | 0.144 |
| LNECONC | 0.016 | 1.000 | 0.933 | 0.950 | 0.235 | 0.963 | 0.917 |
| LNGDPA | 0.000 | 0.933 | 1.000 | 0.997 | 0.250 | 0.910 | 0.981 |
| LNGDPR | 0.001 | 0.949 | 0.997 | 1.000 | 0.253 | 0.932 | 0.981 |
| LNHKPOV | -0.216 | 0.235 | 0.250 | 0.254 | 1.000 | 0.316 | 0.278 |
| LNSOCC | 0.035 | 0.963 | 0.910 | 0.932 | 0.316 | 1.000 | 0.922 |
| LNURBN | 0.144 | 0.917 | 0.981 | 0.981 | 0.278 | 0.922 | 1.000 |

**Source: computed by the authors**

Correlation coefficients between the dependent variable (lnhkpov) and all the explanatory variables are generally

---

[1] From the estimated static long-run regression equation, the associated residuals were tested for stationarity. Stationarity of residuals implies that variables in the equation that generates the residuals are cointegrated. These cointegration vectors, which represent long-term relations among the variables, allow us to establish the long-term determinants of poverty.

weak – ranging from -0.22 to 0.32. The correlations between the independent variables are quite high, generally around 90 percent. This contrasts sharply with the extremely low correlations between credit to the agricultural sector and all other explanatory variables. The perfect correlation between credit to the agricultural sector and agricultural GDP is instructive.

5.2 Time Series Properties of the Variables

The test shows that most of the variables were integrated of order one. There were only two exceptions. These were gdpt and hkpov (see table 2). Each of these was found to be integrated at level i.e., I(0). The non-stationary nature of the series having been so established, it became necessary to check the prospects of long-run relationships between the variables in our behavioural model.

**Table 3: Unit Root Test Results**

| Variables | Lag Length | Level | | | Order of Integration |
|---|---|---|---|---|---|
| | | 0 | 1 | 2 | |
| Lngdpt | 1 | -1.8006 | -4.4858 | | I(0) |
| Lngdpa | 0 | -2.5590 | -4.5406 | | I(1) |
| Lngdpr | 1 | -1.8005 | -4.4864 | | I(1) |
| Lneconc | 0 | -2.5478 | -6.0258 | | I(1) |
| Lnsocc | 1 | -3.4185 | -7.9825 | | I(1) |
| Lncragr | 0 | 0.2277 | -9.9593 | | I(1) |
| Lnhkpov | 4 | -1.3581 | -0.5003 | 5.4231 | I(0) |
| Lnurbn | 0 | 0.1896 | -5.7311 | | I(1) |

**Source: computed by the authors**

As was expected, its regression residual was confirmed as having zero mean and no deterministic trend. Tests, conducted without intercept and time trend, revealed that the equilibrium error was integrated at level i.e., I(0). Consequently, the variables in the static equation were confirmed to be cointegrated and have been treated as such.

The Engle-Granger (1987) test procedure had to be utilized in spite of the fact that it may not be that robust[1]. Apart from being guilty of small-sample bias, it may fail to detect a long-run relationship even when one exists. An improved alternative, the Johansen (1991) approach, was check-mated by insufficient number of data points. Thus, we could not take advantage of any of the new methods designed to overcome a defect in an existing (old) method.

5.3 Presentation and Evaluation of Estimated Models

Our estimated results are presented in two parts representing the short-run (static) model and its short-long dynamics in tables (4) and (5), respectively. Results in table 4 express the role of existing capacity in reducing human capital poverty. As expected, while growth in the non-agricultural sectors of the economy would reduce human capital poverty in the long run, growth in the agricultural sector would rather intensify it. These results are highly significant. However, conventional wisdom contradicts the latter position, mainly because it sees poverty solely in its income dimension.

**Table 4: VAR Long-Run Results   (Dependent Variable: hkpov)**

| Variable | Coefficient | t-Statistic |
|---|---|---|
| **Constant** | 24.14 | |
| **lngdpr(-1)*** | -2.53 | -3.02 |
| **lngdpa(-1))*** | 2.39 | 3.21 |

**\* Significant at the 1% level**

Results in table 5 summarize short-run impacts of lagged values of hkpov, lngdpa, lngdpr and other determinants of hkpov. These results follow theoretical expectations but, unlike their long-run counterparts, are not statistically significant at conventional levels- except credit to the agricultural sector.

---

See Thomas (1997: 431) for a critique of this procedure.

**Table 5: VAR Short-Run Results (Dependent Variable: hkpov)**

| Variable | Coefficient | t-Statistic |
|---|---|---|
| Constant | -0.712 | -1.893 |
| Δlnhkpov(-2) | -0.296 | -1.673 |
| Δ lnhkpov(-3) | -0.09 | -0.510 |
| Δlngdpr(-2) | 0.028 | 0.439 |
| Δ lngdpr(-3) | 0.091 | 1.266 |
| Δlngdpa(-2) | -0.136 | -1.665 |
| Δ lngdpa(-3) | -0.115 | -1.553 |
| Lneconc | 0.003 | -0.146 |
| Lnsocc | -0.024 | -0.862 |
| lncragr** | -0.031 | -2.408 |
| Lnurbn | 0.223 | 1.591 |
| Ect (-1) | -0.18 | -0.64 |
| $R^2$ | 40.15 | |
| F-statistic | 1.46 | |

**** Significant at the 5% level**

With respect to public spending, while the positive impact of economic services expenditure is not significant, it has the potential of reinforcing human-capital poverty in Nigeria. The reverse is the case with social services expenditure. This has a negative but insignificant impact of 0.024 on human-capital poverty. However, credit to the agricultural sector reduces poverty significantly. A 10 percent increase in total credit to the agricultural sector reduces the number of the poor by 0.3 percent. On the other hand, urban population growth and human-capital poverty move in the same direction. A 10 percent increase in urban population raises it by 2.23 percent. The value of the disequilibrium error term (Ect(-1)) has the correct (negative) sign; but it is statistically insignificant. With a value of -0.018, the speed of adjustment to equilibrium following a shock is quite low at only 1.8 percent per annum.

## 6. SUMMARY AND CONCLUSION

6.1 The Major Findings

In the medium-to-long term, agricultural development increases human capital poverty, while development in the other sectors of the economy reduces it. This agrees with the labour surplus theory that predicts that agriculture should be less labour-dependent in the long-run. In the short-to-medium term, public capital expenditure on social services, including credit to the agricultural sector and agricultural development, generally, have the potential to reduce poverty. Public capital expenditure on economic services, growth in the non-agricultural sector of the economy, and increased urbanization intensify the incidence of human capital poverty. This underscores the importance of public expenditure on education and health.

Ebong (2010) had, in an earlier study, found capital expenditures on health and education to be the only components of public expenditure that tend to exert both short- and long-run effects on poverty. Investments in human capital, even at the basic level, are highly significant in their effects on potential rates of human poverty reduction through promotion of economic growth.  This is obvious because the more highly trained the work force; the more productive it will be in helping to enhance the rate of annual real output in a society.

6.2 Policy Implications and Recommendations

It follows from the above findings that investing in health and education has positive effects on poverty reduction through economic transformation.  Investing in agriculture may also have a positive effect on poverty reduction but only in the short-run. In the medium-to-long term, public expenditure should be directed at raising the capability of the poor. Rural development should target low-skilled, labour-intensive non-agricultural activities. This will address the spate of rural – urban migration which aggravates poverty. There is also need for institutional reforms, particularly credit institutions, to empower the poor through capability strengthening by building on what the poor actually do.

6.3 Conclusion

This study investigated the nature of economic growth in Nigeria. It sought to determine whether this growth has been pro-poor and if not, whether it could be so. In an effort to tackle this problem, vector autoregressive model was formulated and estimated within a vector error correction framework. Within this framework, we have captured reactions of economic growth and other control variables on human-capital poverty both in the short- and long-run. We regard such an analysis invaluable from the policy point of view. We find public capital expenditure on economic services to be poverty-creating, while capital expenditure on social services is poverty

reducing.

A notable strength of our work is its departure from popular pre-occupation with income poverty. We find that economic growth in Nigeria has not been pro-poor but that it has the potential so to be. We also find that agricultural development will reduce poverty only in the short-run. In the medium- to long-term, promoting economic growth in other sectors of the economy will reduce the number of the human-capital poor in Nigeria.

**References**

Aigbokhan, B. E. (2000). *Determinants of regional poverty in Nigeria*. Research report No. 22. Ibadan: Development Policy Centre.

Ajakaiye, D.O. & Olomola, A. S. (2003). Overview of poverty and poverty reduction in Nigeria". Poverty in Nigeria: A Multi-Dimensional Perspective. Ajakaiye and Olomola (eds.). A Nigerian Institute of Social and Economic Research (NISER) Publication.

Alkire, S. (2005). Why the capability approach? Journal of Human Development, 6(1): 115 – 135.

Alkire, S. (2007). Choosing Dimensions: The Capability Approach and Multidimensional Poverty, CPRC Working paper 88. Oxford: Chronic Poverty research centre.

Ariyo, A. & Jerome, A. (2005) Utility Privatization and the Poor in Nigeria. Ibadan: Centre for Public-Private Cooperation.

Arrow, K. J. (1962). The economic implications of learning by doing. Review of Economic Studie,s 29: 157-173.

Barro, B.J. (1989). A Cross-Country Study of Growth, Saving and Government. NBER Working Paper No.2855 (February).

Barro, R. J. (1991). Economic growth in a cross section of countries, Quarterly Journal of Economics, 106: 407 – 443.

Barro, P. J. (1999). Human capital and growth in cross – country regressions". Swedish Economics Policy Review, 6:237-277.

Barro, R. J. & Lee, J-W. (1994). Sources of Economic Growth. Carnegie-Rochester Conference Series on Public Policy 40.June: 1- 46.

Besley, T. (1997). Political economy of alleviating poverty: theory and tnstitutions". Annual World Bank Conference on Development Economics, 1996. Washington DC: World Bank 117 – 134.

Chen, S. & Ravallion, M. (2001). How did the World's poor fare in the 1990s? Review of      Income and Wealth, 4 (September): 283 – 300.

Chubb, J. E. & Moe T. M. (1996). Politics, Markets and Inequality in America". Darby, M. R. (Ed.). Reducing Poverty in America: Views and Approaches. Thousand    Oaks: Sage: 121-153

Clark, D. A. (2005). Sen's capability approach and the many spaces of human wellbeing," Journal of Development Studies, 41(8): 1339-1368.

Cohen, D. & M. Soto (2007). Growth and human capital: good data, good results," Journal of Economic Growth, 12(1).

Dickey, D. A. & Fuller, W. A. (1981). Likelihood ratio statistics for autoregressive time series with a unit root. Econometrica, 19(4): 1057-1072.

Dollar, D. & Kraay, A. (2000). Growth is good for the poor. Mimeo (March). Development Research   Group. Washington, D.C.: The World Bank

Dollar, D. & Kraay, A. (2001). Growth is good for the poor. World Bank Policy Research Working Paper no. 2587. Washington D.C.: World Bank.

Ebong, F. S. (2010). Public expenditure, economic growth and Poverty in Nigeria, 1970-2005. Ph.D Thesis. Department of Economics, University of Ibadan, Ibadan, (unpublished).

El-Laithy, Lokshin, M. & Barneji, A. (2003). Poverty and economic growth in Egypt,1995 – 2000. World Bank Policy Research Working Paper No. 3068 (June)

Engel, R. F. & Granger, C. W. (1987). Cointegration and error correction: representation, estimation and testing. Econometrica, 55(2):251-276.

Fleurbaey, M. (2009). Beyond GDP: The quest for a measure of social welfare. Journal of Economic Literature, 47(4): 1029-1075.

Galor, O. & Moav. O. (2004). From physical to human capital accumulation: inequality and the process of development. Review of Economic Studies, 71: 1001 – 1026.

Ghura, D. C., Leite, A. & Tsangarides, C. (2002). Is growth enough? macroeconomic policy and poverty reduction. IMF Working Paper, No. WP/02/118, Washington, DC: International Monetary Fund.

ILO. (1976). Employment, Growth and Basic Needs. Geneva: International Labour Organization.

Johansen S. (1991). Estimation and hypothesis testing of cointegration vectors in gaussian vector autoregressive

model. Econometrica 59: 325-346.

Kakwani, N. & Pernia, E. (2000). What is pro-poor growth? Asian Development Review, 18:1-16.

Kimenyi, M. S. (2006). Economic reforms and pro-poor growth: lessons for Africa and other developing regions and economies in transition. Working paper series 2006-02, Dept. of Economics, University of Connecticut.

Klasen, S. (2008). Economic growth and poverty reduction. World Development, 36(3): 420 – 444.

Kraay, A. (2004). When is growth pro-poor? Evidence from a panel of countries, The World Bank Policy Research Working Paper No. 3225

Kraay, A. (2006). When is growth pro-poor? Evidence from a panel of countries. Journal of Development Economics. 80: 198 – 227.

Li, H. & H-fu. Z. (1998). Income inequality is not harmful to growth: theory and evidence. Review of Development Economics, 2 (October): 318 – 334.

Lopez, H. (2004). Pro-Poor – Pro-Growth: Is there a trade-off? The World Bank Policy Research Working Paper No. 3378.

Lucas, Robert E., Jr. (1988). On the mechanics of economic development. Journal of Monetary Economics, 22.1: 23-42.

Mankiw, N. G., Romer, D. & Weil. D. N. (1992) "A contribution to the empirics of economic growth. Quarterly Journal of Economics, 107: 407-437.

Mazumdat, K (1999). Measuring the wellbeing of developing countries: achievement and improvement Indices". Social Indicators Research, 47(1): 1 – 60.

McGillivary, M. (2005). Measuring non-economic wellbeing and achievements. Review of Income and Wealth, 51(2): 337-364

Morris, D. (1979). Measuring the conditions of the world poor: The physical quality of life index. Oxford: Permagon.

OECD (2006). Policy guidance on promoting pro-poor growth. Organization for Economic Co-operation and Development. Development Assistance Committee. Paris.

Ogwumike, F. O. (1987). Poverty and basic needs: an approach to development in Nigeria. Ph.D Thesis, Department of Economics University of Ibadan. Xxvi +352.

Ogwumike, F. O. (1991). A basic needs-oriented approach to the measurement of poverty in Nigeria. The Nigerian Journal of Economic and Social Studies. 33 (1,2,3): 105-120.

Ogwumike, F. O. (2001). Appraisal of poverty and poverty reduction strategies in Nigeria. Central Bank of Nigeria Economic and Financial Review 39.4: 45-71.

Oturupane, H., Glewwe, P. & Isenma, P. (1994). Poverty human development and growth: An emerging concensus. American Economic Review: Papers and Proceedings 84 (2): 224 – 249

Ravallion, M. (2004). Pro-poor growth: A primer, The World Bank Policy Research Working Paper No. 3242.

Ravallion, M. & Datt, D. (2002). Why has growth been more pro-poor in some states in India than others? Journal of Development Economics, 68(August): 381 – 400.

Ravallion, M. & S. Chen (2003). Measuring Pro-poor growth," Economic Letters, 78(1). 93-95.

Roemer, M. & Gugerty, M. K. (1997). Does Economic Growth Reduce Poverty? Consulting Assistance on Economic Reform (CAER) Discussion Paper No.4, Cambridge, MA: Harvard Institute for International Development.

Romer, P. M. (1990). Endogenous technological change. Journal of Political Economy, 5: 71-102.

Romer , P. M. (1989). Human capital and growth: theory and evidence. NBER Working Paper Series.

Romer, P. M. (1986). Increasing returns and long run growth. Journal of Political Economy. 94.5:1002-1037.

Sagar, A. D. & Najain, A. (1998). The human development index: A critical review", Ecological Economics, 25. 249 – 264.

Sen, A. K. (1993). Capability and well-being. The Quality of Life. Nussbaum, and Sen, A. K. (eds.). Oxford: Clarendon Press.

Sen, A. K. (1998). Development as freedom. New York: Knopf.

Sen. A. (1997). Human capital and human capability. World Development, 25(12): 1955–61.

Shorrocks, A. & van der Hoeven, R. (2004). Introduction in growth, inequality and poverty: prospects for pro-poor economic development, (ed.). A Shorrocks, R. van der Hoeven, Oxford: Oxford University Press: 1-12.

Streeten, D. (1994). Human development: means and ends. American Economic Review: Papers and Proceedings. 84: 232 – 237.

UNDP. (1990). Human development report 1990. Oxford: Oxford University Press.

UNDP. (1997). Human Development Report, 1997. Oxford: Oxford University Press.

www.iiste.org

United Nations. (1998). The Role of Microcredit in the Eradication of Poverty: Report of the Secretary General. New York: United Nation

White, H. and Anderson, A. (2000). Growth vs. Redistribution: Does the Pattern of Growth Matter? DFID white paper on eliminating world poverty and making globalization work for the poor.

World Bank. (1990). Poverty. World Development Report. Washington, D.C.: The World Bank,

World Bank. (2001) Attacking Poverty. World Development Report, 2001/2002. New York: Oxford University Press.