

MACROECONOMETRIC ANALYSIS OF GROWTH, UNEMPLOYMENT AND POVERTY IN NIGERIA

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Abstract. Nigeria is a nation that is endowed with multifarious and multitudinous resources – both human and material. However, due to gross mismanagement, profligate spending, kleptomania and adverse policies of various governments of Nigeria, these resources have not been optimally utilized; these resources have not been adequately channeled to profitable investments to bring about maximum economic benefits. As a result of the foregoing, Nigeria has been bedeviled with unemployment and poverty. Economic growth, which is supposed to be a solution to the problems of unemployment and poverty, appears not to be so in Nigeria. Nigeria's official statistics show that economic growth has not always been accompanied by decline in unemployment and poverty. It is in this respect that this study finds it worthwhile to address the following questions using time series data for a 31-year period, 1970-2000: (a) what is the nature of relationship between poverty, unemployment and growth in Nigeria? (b) what steps should be taken to ensure that growth is such that brings about decrease in unemployment and poverty in Nigeria?

I. INTRODUCTION

In Africa, the incidence of poverty has been increasing significantly for many years. For instance, it is documented that the number of poor people increased by about two-thirds between 1970 and 1985, and rose from 180 million (47% of the population) in 1985 to 265 million by the year 2000 (Aluyor, 2000). Different groups of the poor in Africa are affected differently because they are faced with different constraints, needs, and roles in the society. In fact, virtually all-African countries are known to be in poverty, and their people experience very poor living conditions. It is true that there may be pockets of rich people in these countries, but vast majority of the

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people wallow in abject poverty (Ndekwa, 1998). If we use per capita income as a measure of poverty, African economies are generally poor. For instance, in 1998, the African country with the highest GNP per capita was South Africa with GNP per capita of US \$ 2,290 when the world average was US \$ 3,470. Out of the 10 poorest countries in the world in 1988, 7 of them were in Africa. This ratio improved to 6 out of 10 in 1990 but deteriorated to 8 out of 10 in 1995 (Ndekwa, 1998). Many African countries experienced deterioration in their GNP per capita in the 1990s (*see* World Development Reports 1990, 1995 and 1997). This suggests deterioration in living conditions and increased incidence of poverty. As a matter of fact, the sight of various groups of people looking desperately malnourished and in obvious want of every basic need of life is a common feature in Africa and other less developed regions of the world. It is instructive to state, at this juncture, that poverty in extreme cases is a condition that dehumanizes people and reduces them to a sub-human level of destitution (Sagbamah, 1997).

In what seemed to be an overview of the incidence of poverty, Ogwumike (1998) observed that poverty is a world-wide problem that plagues over one billion people in the world. Of the about 6 billion people on earth, about 1.3 billion earn less than US \$ 370 a year (that is about US \$ 1 a day). Most of the poor live in the developing world – in Africa, Asia and Latin America. Over 200 million people in Africa are trapped in the net of abject poverty. In sub-Saharan Africa, the incidence of poverty is manifestly tremendous. On the average, 45 to 50% of sub-Saharan Africans live below the poverty line – this is much a higher proportion than in any other region except South Asia (World Bank, 1997, cited in Ogwumike, 1998). In West Africa, virtually all countries (including Nigeria) are classified as low-income countries by the World Bank and low human development countries by the United Nations Development Programme; in these countries, human poverty afflicts about half of the population (Ogwumike, 1998).

In Nigeria, there is very high level of poverty. A report by the World Bank in 1996 showed that in 1985, about 43% of the population was living below the poverty line of 395 naira a year in 1985 prices. The number declined to 34% by 1992. The World Bank report further noted that poverty increased between 1992 and 1995 mainly due to adverse policy changes (Ogwumike, 1998). In fact, according to 1999 report of Federal Office of Statistics (FOS) on Poverty Profile for Nigeria: 1980-1996, the incidence of poverty in Nigeria increased sharply both between 1980 and 1985 and between 1992 and 1996. The figures were 27.2%, 46.3%, 42.8% and 65.6% for 1980, 1985, 1992 and 1996 respectively.

To further strengthen the assertion that there is very high level of poverty in Nigeria, let us spotlight some other indicators of poverty in Nigeria. The percentage of household income spent on food from 1991 to 1997 is estimated to be 67 (World Bank, 1998). Following Engel's law, this implies that there is high level of poverty in Nigeria. The percentage of children under 5 years who suffered from malnutrition from 1990-1996 was estimated to be 35 on the average; the number of people (per 1,000 people) who purchased daily newspapers in 1994 was estimated to be 18, the number of people (per 1,000 people) who had television sets in 1996 was estimated to be 55; the number of people (per 1,000 people) who had telephone main lines in 1996 was estimated to be 4; the number of people (per 1,000 people) who had personal computers in 1996 was estimated to be 4 (World Bank, 1999). The percentage of the population with access to sanitation facilities from 1993 to 1995 was estimated to be 36 on the average; the percentage of the population with access to safe water from 1993 to 1995 was estimated to be 35 on the average; the population per physician from 1990 to 1994 was estimated to be 599 on the average (World Bank, 1998). Furthermore, the percentage of births attended by trained health personnel from 1990 to 1994 was estimated to be 45 on the average; and the number of pupils per teacher in primary schools in 1990 was estimated to be 39 on the average (World Bank, 1998). Also, Gini coefficient, which is a measure of income inequality, from 1991 to 1995 was estimated to be 44 for urban and 46 for rural – all on the average (World Bank, 1998).

Unemployment is another undesirable phenomenon afflicting all under-developed regions of the earth. In Nigeria, unemployment is well pronounced. Many secondary school leavers and even graduates cannot find jobs, and many engage in jobs in which their potentials are not fully utilized. Even though the official estimates of unemployment in Nigeria are not too robust, and they contradict the general opinion about the problem, however, they indicate that there have been steady fluctuations in unemployment rate in Nigeria. Unemployment has been identified as one of the major causes of poverty in sub-Saharan Africa (Obadan, 1997). Indeed, unemployment is always expected to be highly and positively correlated with poverty. Ogwumike (1998) observed that productive employment is a basic need and is a way of escaping from poverty.

Economic growth, which is one of the major macroeconomic objectives, is regarded as crucial – indeed, the driving force of conquering unemployment and poverty (Obadan, 1997). However, although economic growth is necessary for reduction in unemployment and poverty alleviation, it is not sufficient, because growth alone cannot overcome all the crucial

factors that contribute to unemployment and poverty. The foregoing appears to be the case with Nigeria; economic growth in Nigeria appears not to have provided the expected panacea for unemployment and poverty.

Nigeria is a nation that is endowed with multifarious and multitudinous resources – both human and material. However, due to gross mismanagement, profligate spending, kleptomania and adverse policies of various governments of Nigeria, these resources have not been optimally utilized; these resources have not been adequately channeled to profitable investments to bring about maximum economic benefits. As a result of the foregoing, Nigeria has been bedeviled with unemployment and poverty. These have in some cases led to fall in national output in obedience to Okun's law; these have led to very high dependency ratio and low standard of living – a great multitude of people in Nigeria live in abject misery. Furthermore, unemployment and poverty have led to tremendous increase in criminal activities and social vices in Nigeria. Also, unemployment and poverty are potential sources of political instability in Nigeria for disenchanting, disgruntled and revolutionary elements in the society (Anyanwu and Oaikhenan, 1995). Economic growth, which is supposed to be a solution to the problems of unemployment and poverty, appears not to be so in Nigeria. Nigeria's official statistics show that economic growth has not always been accompanied by decline in unemployment and poverty.

It is in this respect that this study finds it worthwhile to address the following questions using time series data for a 31-year period, 1970-2000: (a) what is the nature of relationship between poverty, unemployment and growth in Nigeria? (b) what steps should be taken to ensure that growth is such that brings about decrease in unemployment and poverty in Nigeria?

The remainder of this study is divided into four sections. Section II reviews the literature and theoretical framework. Section III contains the methodology and section IV is the empirical analysis. Section V concludes the study.

II. LITERATURE REVIEW AND THEORETICAL FRAMEWORK

CONCEPTS OF GROWTH, POVERTY AND UNEMPLOYMENT

The concept of growth is used in all fields of human endeavour. In economics, the concept refers to economic growth. Kuznets, cited in Todaro (1985), defined a country's economic growth as "a long-term rise in capacity

to supply increasingly diverse economic goods to its population; this growing capacity is based on advancing technology and the institutional and ideological adjustments that it demands.”

The foregoing definition implies that economic growth is synonymous with sustained rise in national output, provision of wide range of economic goods, presence of advancing technology, and institutional, attitudinal, and ideological adjustments. Anyanwu and Oaikhenan (1995) stated that economic growth, simply defined, refers to the increase, over time, of a country's or an economic capacity to produce those goods and services needed to improve the well-being of the citizens in increasing numbers and diversity. Many economics often make radical departure from the foregoing definitions of economic growth; they do this in their empirical works; this is based on their belief that economic growth is not always a long term phenomenon, and it does not signify improvement in the well-being of the citizens of an economy (see Khan, 1990; Semboja, Likwelile and Rutasitara, 1999).

Growth is often interpreted by many economists to mean increase in the volume of output in a given current year compared to the output in a given previous year. Anyanwu and Oaikhenan (1995) identified three major definitions of economic growth namely: nominal, real value of output, and per capita value definitions. Under the nominal definition, economic growth is seen as an increase in current value prices of aggregate output. This definition is considered to be the crudest for it does not take into consideration vital issues such as whether or not the increased expenditure is accompanied by a corresponding increase in the real value of output in the reference period. Under the real value of output definition, the nominal value of output is deflated by an appropriate price index. Hence, using this definition, an economy is said to have grown (in real terms) when there is an increase in aggregate output at constant prices over time. The major advantage of this definition is that it takes care of inflation. In the per capita value definition, an economy is considered to have grown if there is an increase in per capita output at constant prices overtime. It is instructive to note that this definition does not take into consideration the disparity in real income distribution. If income distribution is highly skewed in favour of the rich this definition becomes grossly defective.

On the other hand, the concept of unemployment may apply to any factor of production but in most cases it applies to labour as a factor of production. In a general sense, unemployment is defined as a state of “joblessness”. But this definition is too wide to be satisfactory because many

categories of people who are without work should not be classified as “unemployed” in any meaningful sense. For instance, various labour codes prescribe lower and upper age limits for the labour force (those who can be legitimately regarded as either working or available for work). This implies that those who are below the lower limit or above the upper limit are regarded as falling outside the labour force. And when such people are without work, even though they may be willing and able to work, they don't feature in unemployment statistics. Even within the accepted age limits there are people who should not be regarded as “unemployed” even though they may be “idle”, these include those who are physically and/or mentally handicapped – such as cripples and lunatics or imbeciles – full time students and trainees, and housewives who devote all their time entirely to taking care of their homes. Another major problem encountered in the definition of unemployment is the determination of the minimum period of idleness that qualifies a person to be classified as “unemployed”. Usually, in labour force surveys, people who are without work during the reference period are classified as “unemployed”. The problem here is that the reference period varies from one to two days in some countries, to one week and even to three months in other countries. Indeed, the choice of the reference period can significantly affect the magnitude of unemployment as measured in Labour Force Surveys. However, the general requirement is that for people to be regarded as unemployed, they must be actively seeking for work (Falaie, 1971).

Despite the foregoing problems associated with the definition of unemployment the concept has been given many but similar definitions by many economists. Jhingan (1996) defines unemployment as “involuntary idleness of a person willing to work at the prevailing rate of pay but unable to find it.” This implies that voluntarily unemployed people, who do not want to work, and those who are not prepared to work at the prevailing wage rate, are not to be regarded as unemployed.

Anyanwu and Oaikhenan (1995) observed that during the early days of the development of unemployment theory much controversy over the definition of unemployment and origin of unemployment revolved around the distinction between “voluntary” and “involuntary” unemployment. Even the conceptualization of these classes of unemployment has been a source of dispute. However, voluntary unemployment is said to exist when people choose not to work or accept job, for which they are qualified to do, at the prevailing wage rate and conditions perhaps because they have means of living other than employment. Involuntary unemployment, on the other hand, exists when people cannot get job even if they are willing to accept lower

real wages or poorer conditions than workers of the same or similar qualification who are currently in employment. Despite the difficulties of measurement and the setting of standard with regard to the foregoing classification, the taxonomy of unemployment include a condition of “being out of job”, an activity of “searching for job”, an attitude of “desiring a job under certain conditions” and “the need for a job” (Thatcher, 1966, cited in Okigbo, 1986).

However, the concept of poverty is by no means an easy task. In the words of Aboyade (1975), poverty, like an elephant, is more easily recognized than defined. However, it is important to define a concept no matter how crudely this is done, at least to provide a focus by which we can determine the limits of our understanding (Tella, 1997). Aboyade (1975) implicitly accepted this position when he said that it is not altogether a semantic escapism or academic obscurantism for economists to search for an objective means of identifying poverty and of separating it from its opposite phenomenon of non-poverty. Indeed, it is absolutely imperative to give definitions of poverty so that its meaning and scope may be identified.

Okojie *et al.* (1999) observed that there is no general consensus on any meaningful definition of poverty in the literature. Due to the fact that poverty affects many aspects of human condition – including physical, moral, and psychological – a concise and universally accepted definition is elusive. The literature is replete with multifarious conceptualizations of poverty. Ogwumike (1987), Ogwumike and Odubogun (1989), Odusola (1997) and Okojie *et al.* (1999) observed that the most common practice is to conceptualize poverty as absolute that is, poverty is lack of adequate resources to obtain and consume a certain bundle of goods and services. Such a bundle of goods and services would contain an objective minimum of basic necessities such as food, shelter and clothing. There are two major problems associated with this definition. The first is: what do we include in the objective minimum? And the second is: how do we set minimum standards for basic necessities like clothing, food, transportation etc. which often depend on individual taste, cultural norms and values, and the prevailing socio-economic conditions within a given society or nation (Afonja and Ogwumike, 1996, cited in Odusola, 1997). Again absolute poverty is sometimes defined as the approximate maximum proportion of income that a family spends on certain subsistence commodities (Watts, 19967 cited in Odusola, 1997). In conformity with Engel’s law, any household that has to spend more than specified poor (Federal Office of Statistics, 1996; Obadan, 1997; and Odusola, 1997).

An alternative approach is to define poverty as being relative poverty with respect to the living standards that prevail in a given society or nation. A major advantage of this approach is that it reflects the changing perceptions of acceptable minimum living standards. The reasonableness of the foregoing will be clearly seen when we consider the fact that certain goods and services, which are seen as necessities in the advanced countries, are seen as luxuries in developing countries.

The concepts of absolute poverty and relative poverty have been given alternative but similar definitions by many economists. Absolute poverty is characterized by low calorie intake, poor housing conditions, inadequate health facilities, poor quality of educational facilities, low life expectancy, high infant mortality, low income, unemployment and under employment (Olowononi, 1982, 1997). Ogwumike (1991) defined relative poverty in terms of the bottom 10 to 15% of the income distribution. The World Bank (1977) defined relative poverty as existing where households have per capita income of less than one-third of the average per capita income of the country concerned. The World Bank defined absolute poverty in terms of a household's command over resources, which are sufficient to obtain a basket of goods and services required to guarantee a minimum decent living standard; it is a condition of life degraded by disease, illiteracy, malnutrition and squalor.

Aku, Ibrahim and Bulus (1997) categorized poverty along five dimensions of deprivation namely: personal and physical deprivation, economic deprivation, social deprivation, cultural deprivation, and political deprivation. Personal and physical deprivation can be experienced in nutritional, educational, health and literacy deficiency and lack of self-confidence. Economic deprivation includes lack of access to property, income, assets, finance and factors of production. Social deprivation is manifested in impediments to full participation in social, political and economic life. Cultural deprivation is when people are deprived in terms of values, beliefs, attitudes, knowledge, orientation and information. Based on this, they are not able to take advantage of economic and political opportunities. Under political deprivation, we see that ignorance is a fundamental barrier to the elimination and deprivation. Ignorance, among other things, undermines access to legal institutions. The poor lack political voice. Those who are politically deprived occupy lowly positions and are subjected to humiliation through economic and/or physical threat.

Poverty can be made between temporary and chronic poverty. The transient poverty otherwise known as poverty of the hopeful is temporary. It

may arise from theft, drought, war, flood and fire. The victims are poor in the short-run. The unemployed as a result of economic recession fall into this group. Chronic poverty on the other hand is long term and persistent. Its causes are largely structural. Chronic poverty may be so as to describe the average life in a society. This kind of poverty may be transmitted from one generation to another and it is very persistent (Ogwumike, 1995).

THEORETICAL CORRELATIONS BETWEEN GROWTH, POVERTY AND UNEMPLOYMENT

Obadan (1997) and Sagbama (1997) observed that growth and employment move in the same direction. All things being equal, the higher the growth rate, the higher the employment rate. A corollary to the foregoing is that growth and unemployment move in opposite direction. If the growth rate increases, unemployment rate will fall, all things being equal. Output is, among other things, a function of employment. Increase in employment will, all things being equal, lead to increase in output and hence economic growth. On the other hand, reduction in employment (which is unemployment) will lead to decrease in output and hence in economic growth (all things being equal). The foregoing shows that there is a negative correlation between growth and unemployment. Therefore, to reduce unemployment, growth-boosting policies should be formulated and put in place. However, it is important to note that for growth to bring about reduction in unemployment; such growth must be associated with labour force participation. According to the classical school of thought this brings about increase in the demand for goods and services and such leads to increase in the demand for labour services which, in turn, leads to increase in employment and thus decrease in unemployment. However, it is important to reiterate that the growth that brings about increase in employment (or decrease in unemployment) is that which is highly labour-intensive and goes with increased labour force participation.

Many empirical evidences show a negative relationship between growth and unemployment. For instance, in the Caribbean, countries that have sustained high growth rates have decreasing unemployment rates; these countries include Antigua and Barbuda, the Bahamas, Barbados, and St. Kitts and Nevis (Baker, 1997). In Nigeria, the high rate of growth between 1988 and 1992 was accompanied by decline in the rate of unemployment (UNDP, 1997). A major strategy that can be used to bring about rapid economic growth and reduction in unemployment is investment in human capital. A recent World Bank study shows that the most important factor that brought about rapid growth and reduction in unemployment rate in East Asian countries was investment in human capital (*see* Obadan, 1997).

Meier (1989) asserted that whether absolute poverty is measured by low income, low life expectancy or illiteracy, there is a strong correlation between poverty and growth: the correlation is negative. Meier (1989) stated that there is a great deal of truth in the proposition that there is a strong inverse association between economic growth and poverty but this needs to be carefully qualified. A comparison of different countries shows that the relation between absolute poverty and economic growth is far from perfect. This is due to differences in income distribution. Looking at changes within particular countries, the connection between growth and poverty reduction over periods of a decade or two appears inexact. However, there is general agreement that growth in the very long-term eliminates most absolute poverty (World bank 2001; Obadan, 1997).

The connection between economic growth and poverty goes both ways. Health, education and well-being of the mass of people in industrialized countries are a cause, as well as a result of national prosperity. Similarly, people who are unskilled and sick make little contribution to a country's economic growth (Meier, 1989).

Economic growth is very crucial in poverty reduction. Growth reduces poverty through rising employment, increased labour productivity and high real wages. Countries in the Caribbean that have sustained high growth rates and invested in human capital have relatively low levels of poverty; these countries include Antigua and Barbuda, and St. Kitts and Nevis. But poverty has increased in Caribbean countries that have had low or negative rates of growth for protracted periods; these countries include Guyana, Haiti, Jamaica, Suriname and Trinidad and Tobago (Baker, 1997). For growth to bring about reduction in poverty, among other things, it has to promote the productive use of the poor's most abundant asset which is labour. Provision of employment that goes with living wages for the poor is very important in any poverty alleviation strategy; this is in line with the capitalist entrepreneurial theory of poverty. Job creation and generation of adequate income earning opportunities for the poor are made possible through high and sustainable economic growth.

As stated earlier, economic growth that is associated with huge investment in human capital leads to reduction in poverty. And such investment may be made possible by increase in savings. No wonder, in the classical theory of growth, in the Harrod-Domar growth model and in the Meade's neoclassical model of growth, savings is positively correlated with growth. Indeed, when savings are adequately channeled to profitable investment it brings about growth.

There is a very strong positive correlation between high levels of unemployment and widespread poverty. In most cases, those without regular employment or with only scattered part-time employment are among the very poor. Those with regular paid employment in the public and private sectors are typically among the middle to upper-income class; they are typically among the non-poor. However, it would be wrong to assume that everyone who does not have a job is necessarily poor or that all those who work full time are among the non-poor. There may be some unemployed urban workers who are “voluntarily” unemployed in the sense that they are searching for a very specific kind of job, may be because of high expectation based on their presumed educational or skill qualifications. They refuse to accept jobs they consider to be inferior, and they are able to do this because they have outside sources of finance (*e.g.* finance from friends and relatives). Such people are unemployed by definition but they may not be poor. On the other hand, some people work full-time in terms of hours per day but earn very little income are “fully employed” but often they are still very poor (Todaro, 1985).

Despite the foregoing reservations about a too literal linkage between poverty and unemployment, it still remains true that a major mechanism for alleviating poverty, especially in less developed countries, is provision of adequate paying and productive employment opportunities for the very poor. Therefore, employment must be an essential ingredient in any poverty-focused development strategy (Todaro, 1985).

Empirical evidences show that poverty can be reduced through reduction of unemployment among the poor. For example, in Nigeria, there was a steady decline in unemployment rate between 1987 and 1991 and this was followed by reduction in poverty (Federal Office of Statistics, 1999; Central Bank of Nigeria, 1998). In Indonesia and Malaysia, reduction in unemployment among the poor brought about reduction in the level of poverty (World Bank, 1990). The foregoing supports the assertion that there is a strong positive correlation between unemployment and poverty.

III. METHODOLOGY

If we consider growth and unemployment we will see two-way causation in the functional relationship between them. Growth is a function of employment. This implies that growth depends on the rate of unemployment. If the rate of unemployment rises, all things being equal, growth rate will decline. If firms lay off many of their workers, this will, all things being

equal, increase the rate of unemployment. If the rate of unemployment rises, all things being equal, it will lead to decline in aggregate output, that is, it will impede growth. On the other hand, employment is a function of growth. This implies that unemployment depends on growth. If growth rate rises, this will bring about higher incomes and increased demand, and unemployment rate will reduce; all things being equal.

Let us consider growth and poverty at this stage. Poverty may be function of growth. Higher growth rates may reduce absolute poverty by providing higher incomes and living standards for poor households. When there is equitable distribution of income, increase in growth is expected to reduce the level of poverty; all things being equal. On the other hand, growth may be a function of poverty. Higher levels of poverty may lower overall productivity, and in turn, reduce growth rate. Indeed, poverty may be a disincentive to the labour force. Poverty may reduce overall efficiency in production and hence reduce growth. From the foregoing one can say that poverty is both a consequence of, and a constraint on, growth.

Furthermore, let us look at unemployment and poverty. Unemployment may be a function of poverty. Higher levels of poverty may bring about reduction in income and demand, in turn; lead to increase in the rate of unemployment. On the other hand, poverty may be a function of unemployment. Indeed, in many cases, unemployment breeds poverty. When people are unemployed, they find it extremely difficult, or even impossible, to afford the basic necessities of life. Indeed, higher rates of unemployment may lead to higher levels of poverty.

Based on the foregoing, the choice of model for this study is a multi-equation model. This is appropriate because of the two-way causation that exists in the functional relationships among growth, unemployment and poverty. Multi-equation models have been used in many empirical works. Parikh and Starmer (1994) used multi-equation model in their study of the monetary sector of the Bangladesh economy. The equations of the model were estimated using the two-stage least squares technique (2SLS). Tests for serial correlation were carried out and, where necessary, equations were re-estimated employing a first-order autoregressive scheme. The estimates of the model were robust (as shown by the results of the various diagnostic tests conducted). In fact, the entire model proved to be reliable in a situation where there is two-way causation in the functional relationship that exists among variables. Also, Marzouk (1975) used multi-equation model in the stimulation of growth and employment prospects of Sudan. Furthermore, Barro and Lee (1993) used a multi-equation model to examine the

relationship between growth and various factors affecting growth such as educational attainment, population growth, and revolutions; the 3-stage least squares technique was used to estimate the model.

MODEL SPECIFICATION

The model to be estimated in this study is stated as follows:

$$\text{POV} = \alpha + \beta \text{GRWTH} + \xi \text{UNEMP} + \gamma \text{INFLA} + \delta \text{AGRIPROD} + \varepsilon \text{MANPROD} + \zeta \text{PETPROD} + \mu \quad (1)$$

$$\text{GRWTH} = \varphi + \psi \text{POV} + \omega \text{UNEMP} + \varsigma \text{MONSUP} + \sigma \text{EXCHRATE} + \rho \text{SAVRATE} + \mu \quad (2)$$

$$\text{UNEMP} = \pi + \upsilon \text{POV} + \acute{\omega} \text{GRWTH} + \theta \text{TRADISP} + \lambda \text{WORKSTOP} + \mu \quad (3)$$

where POV is the poverty index

GRWTH is growth measured by change in real gross domestic product

UNEMP is the unemployment rate

INFLA is the inflation rate

AGRIPROD is the index of agricultural production

MANPROD is the index of manufacturing production

PETPROD is the index of petroleum production

MONSUP is the broad money supply

EXCHRATE is the naira exchange rate to United States dollar

SAVRATE is the savings rate expressed as proportion of nominal gross domestic product

TRADISP is trade disputes

WORKSTOP is work stoppages

μ is stochastic error term

$\alpha, \beta, \xi, \gamma, \delta, \varepsilon, \zeta, \varphi, \psi, \omega, \varsigma, \sigma, \rho, \pi, \upsilon, \acute{\omega}, \theta, \lambda$ are the parameters of the model

A PRIORI EXPECTATION

In equation 1 where poverty level is a function of growth, unemployment rate, inflation rate, agricultural production, manufacturing production and

petroleum production; Poverty is expected to be inversely related to growth. Higher levels of growth will, all things being equal, bring about lower levels of poverty. Poverty is expected to be directly related to unemployment rate. Higher rates of unemployment will, all other things remaining the same lead to higher levels of poverty. Agricultural, manufacturing and petroleum productions are major industrial activities in Nigeria. Increases in agriculture, manufacturing and petroleum productions are expected to bring about reduction in poverty in Nigeria through employment creation, income generation, provision of basic consumption needs and infrastructure. Poverty is expected to be positively related to inflation rate. High rates of inflation make it impossible for many people to afford basic necessities of life. Indeed, high rates of inflation bring about high levels of poverty.

In equation 2 where growth is a function of poverty, unemployment rate, money supply, exchange rate and savings rate. Growth is expected to be inversely related to poverty. Growth is expected to be inversely related to unemployment rate. Higher rates of unemployment will, all things being equal, bring about lower levels of growth for economic theory postulates that growth is a positive function of employment. Growth and money supply are expected to be positively related (Ajayi and Ojo, 1979). Increases in money supply will, all things being equal; bring about growth through its effect on prices. Also, growth is expected to be positively related to exchange rate. Increase in exchange rate brings about increase in domestic prices through the multiplier process; this, in turn, brings about growth. Growth is also expected to be positively related to savings rate (*see* the Harrod-Domar growth model). Increases in savings rate will bring about higher levels of growth. Savings leads to investment and then to growth.

In equation 3 where unemployment rate is a function of poverty, growth, trade disputes and work stoppages. Unemployment rate is expected to be positively related to poverty and inversely related to growth. Trade disputes and work stoppages cause unemployment in Nigeria. For example, the disputes between university lectures in Nigeria and the federal government and the consequent work stoppages by the lecturers in the 1990s, 2001 and 2003 led to the dismissal of many lecturers, and this adversely affected the unemployment situation in the country. Therefore, unemployment rate is expected to be positively related to trade disputes and work stoppages.

TYPES AND SOURCES OF DATA

This study has to do with an economic analysis of growth, unemployment and poverty in Nigeria. The study used times series data for a 31-year period,

1970-2000. This period witnessed a lot of policy changes in Nigeria. The study considered, among other things, many conceptual issues relating to poverty, unemployment and growth. These data were secondarily sourced from World Bank Publications, IMF Publications, United Nations Publications, Nigeria's Federal office of Statistics Publications and Central Bank of Nigeria Publications as well as other relevant publications.

IV. EMPIRICAL ANALYSIS OF RESULTS

Three-Stage Least Square (3SLS) Estimates

$$\begin{aligned}
 \text{POV} &= 71.65 - 0.0042 \text{ GRWTH} + 1.75 \text{ UNEMP} + 0.241 \text{ INFLA} \\
 &\quad (5.17) \quad (0.01) \quad (0.548) \quad (0.054) \\
 &\quad 13.86 \quad -0.42 \quad 3.19 \quad 4.4 \\
 &\quad -0.108 \text{ AGRIPROD} + 0.157 \text{ MANPROD} + 0.165 \text{ PETPROD} \\
 &\quad (0.024) \quad (0.029) \quad (0.045) \\
 &\quad -4.5 \quad 5.4 \quad 3.7 \\
 R^2 &= 0.7749 \quad \quad \quad \text{DW} = 1.83 \\
 \\
 \text{GRWTH} &= 251.102 - 1.43 \text{ POV} + 28.57 \text{ UNEMP} - 0.00028 \text{ MONSUP} \\
 &\quad (177.48) \quad (1.91) \quad (10.13) \quad (0.000426) \\
 &\quad 1.41 \quad -0.75 \quad 2.82 \quad -0.66 \\
 &\quad + 0.17 \text{ EXCHRATE} - 1296.27 \text{ SAVRATE} \\
 &\quad (2.02) \quad (524.41) \\
 &\quad 0.084 \quad -2.47 \\
 R^2 &= 0.2114 \quad \quad \quad \text{DW} = 2.6027 \\
 \\
 \text{UNEMP} &= -7.2 + 0.105 \text{ POV} + 0.0048 \text{ GRWTH} - 0.0041 \text{ TRADISP} \\
 &\quad (3.64) \quad (0.0344) \quad (0.0034) \quad (0.00262) \\
 &\quad -1.98 \quad 3.05 \quad 1.41 \quad -1.56 \\
 &\quad -0.0038 \text{ WORKSTOP} \\
 &\quad (0.0025) \\
 &\quad -1.5 \\
 R^2 &= 0.3352 \quad \quad \quad \text{DW} = 1.11
 \end{aligned}$$

The overall significance of the regression result for each of the equations show that equation 1 is statistically significant at 5 percent level of significance while equation 2 is not statistically significant at 5 percent level of significance. However, equation 3 is statistically significant at 5 percent

level of significance. More so, in equation 1 about 77 percent of the total variation in POV is explained by GRWTH, UNEMP, INFLA, AGRIPROD, MANPROD and PETPROD, while in equation only 21 percent of the total variation in GRWTH is explained by POV, UNEMP, MONSUP, EXCHRATE and SAVRATE. But in equation 3, about 34 percent of the total variation in UNEMP is explained by POV, GRWTH, TRADISP and WORKSTOP.

Equation 1 tells us that poverty index is negatively related to growth and agricultural production but it is positively related to unemployment rate, inflation rate, manufacturing production and petroleum production. This imply that higher growth levels in Nigeria go with decreases in poverty index and as stated earlier, decreases in poverty index means increase in level of poverty. Increase in growth level goes with increase in poverty level; increases in agricultural production go with increases in poverty level; and increases in unemployment rate, inflation rate, manufacturing production and petroleum production go with decreases in poverty level. The negative relationship between poverty index and growth, which is contrary to *a priori* expectation, suggests that growth in Nigeria does not trickle down to the poor; it also suggests that there is high level of income inequality in Nigeria. Also, the negative relationship between poverty index and agricultural production suggests that as more people go into agriculture in Nigeria, poverty level rises. This may be due to the fact that agriculture is not lucrative in Nigeria. More so, the positive relationship between poverty index and unemployment suggests that as more people become unemployed in relative terms, the general level of poverty falls. In Nigeria, nominal wages are frequently increased, this often lead to the laying-off of many workers. On the other hand, there is positive relationship between poverty index and inflation rate which means that increase in inflation rate goes with reduction in poverty level in Nigeria. This suggests further that increase in inflation rate serves as impetus for people to work hard and improve their economic conditions, and hence reduce their level of poverty. The experience of many developing nations shows that some degree of inflation is necessary for growth. Furthermore, there is a positive relationship between poverty index and manufacturing production; and also positive relationship between poverty index and petroleum production. These imply that increase in manufacturing production and petroleum production, reduce poverty in Nigeria. Increase in manufacturing and petroleum production lead to improvement in infrastructure and quality of life of people.

However, equation 2 show that growth is negatively related to poverty index, positively related to unemployment rate, negatively related to money

supply, positively related to exchange rate and negatively related to saving rate. These imply that increase in poverty level leads to increase in growth in Nigeria, increase in unemployment rate leads to increase in growth, increase in money supply leads to decrease in growth in Nigeria, increase in exchange rate leads to increase in growth, increase in savings rate leads to decrease in growth in Nigeria, and, of course, the positive constant term shows that there will be growth even when poverty index, unemployment rate, money supply, exchange rate and savings rate are zero. The very low R^2 in the equation may be responsible for the insignificance of the overall regression, and most of the parameter estimates are not statistically significant.

Unemployment rate is positively related to poverty index and growth, and negatively related to trade disputes and work stoppages as shown in equation 3. These imply that increase in level of poverty leads to reduction in unemployment rate in Nigeria. It is possible that poverty will make people accept jobs with very low wages. Increase in growth leads to increase in unemployment rate in Nigeria. This suggests that Nigeria uses capital-intensive techniques of production which often leads to technological and structural unemployment. Increase in trade disputes and work stoppages lead to decrease in unemployment rate in Nigeria. Trade disputes and work stoppages have often led to brain drain, and when such brain drain occurs, vacancies will exist and people who were hitherto unemployed or underemployed will be employed to fill the vacancies.

Consequently, the policy implications of the estimates of our model will be to set out appropriate macroeconomic policies to significantly reduce the high level of income inequality that is crucial for poverty alleviation. Growth policies should be people-centred. Huge capital should be made in human capital development. Policies are required to provide more employment opportunities for the poor. There is need for restrictive policies that will bring about moderate inflation. There should be policies to adequately increase the real wages and quality of life of agriculturalists. There is need to increase investment in the manufacturing and petroleum sectors.

V. CONCLUSION

The study stated clearly that there is very high level of poverty in Nigeria. Majority of Nigerians live in abject poverty. Unemployment is also a major problem plaguing many Nigerians. Unemployment is highly correlated with poverty. The estimates of the model of the study, however, show an inverse relationship between poverty level and unemployment rate which implies

that increase in unemployment rate reduces poverty in Nigeria, and increase in level of poverty reduces unemployment rate. This was due to the fact that when people become unemployed in the official sense in Nigeria, many still engage in various types of irregular jobs which are not officially regarded as employment. These irregular jobs make many of the workers better-off and increase their quality of life and bring them out of poverty. Also, some of the workers who become unemployed in Nigeria depend on their non-poor relatives for survival, and in many cases, their non-poor relatives make them to be better-off and bring them out of poverty. By implication, when people become very poor, they tend to accept jobs that go with very low wages, this reduces unemployment.

Economic growth on the other hand is not alleviating poverty and unemployment rate in Nigeria rather it exacerbates it. For poverty alleviation and unemployment reduction, economic growth is a necessary but not a sufficient condition. For growth to be an effective strategy, it has to be accompanied by a deliberate policy of redistribution. The pattern of growth in Nigeria needs to be changed so that the poor in rural and urban areas can adequately participate in the process. Nigeria needs broad-based and labour intensive growth strategies. Adequate social services and infrastructure to reduce the depth and severity of poverty in Nigeria should be provided. Growth strategies should be targeted at the poor, more investment should be made in human capital. Agriculture should be adequately boosted and adequate emphasis should be placed on manufacturing and petroleum industries.

Moreover, exports should be increased and imports reduced. Savings should be sufficiently channeled to profitable investment. Adequate and effective monetary policies should be used for rapid and sustainable growth; and finally, government should know that the efficacy of all the measures recommended depends to a great extent on the integrity of its officials and public servants.

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