

Macroeconomic Policies On Poverty And Income Inequality In Nigeria: An Empirical Analysis

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Abstract

This study examined the impact of macroeconomic policies on poverty and income inequality in Nigeria spanning 28 years, from 1991 to 2018. To achieve this study specific objectives, the OLS was used as the estimation technique to estimate the impact of macroeconomic policies on poverty and income inequality in Nigeria. From our empirical results, there is evidence of a significant relationship between economic growth, poverty and income inequality. While growth plays a significant role in reducing the gap in income inequality, this has not translated to reducing poverty. The results also show that government macroeconomic policies were consistent with both reducing poverty and income inequality. The major findings revealed that the role of government is vital as the major driver of the economy through its monetary and fiscal policy actions, which can catalyze the economy to the desired state. Government participation in the provision of social goods, that will benefit a large proportion of the population is also essential. It is recommended that a stable macroeconomic environment is required to achieve sustained growth that will create equal opportunities for all and reduce the high poverty rate in Nigeria.

Keywords: Income Inequality; Economic Growth; Poverty; OLS

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I. INTRODUCTION

Economic inequality and poverty in Nigeria have reached unprecedented levels in the last twenty-eight years. Despite being the country with the largest economy in Africa, she has struggled with extreme poverty and socio-economic inequality. Nigeria has an economic potential that can lift millions of its citizens out of poverty. OXFAM International (2020) in its report stated that the combined wealth on Nigeria's five richest men could end poverty at a national level yet five million face hunger. National Bureau of Statistics in its 2019 report suggests that over 82 million Nigerians live on less than \$1 per day and forty percent of Nigerians live in poverty. This statistics is staggering if this is compared to the 2019 population estimates. Poverty and inequality in Nigeria are not due to lack of resources, as the country is blessed with abundant human and natural resources, but due to the mismanagement of its resources and weak political and economic institutions.

Poverty is defined by the World Bank (Haubhton and Khander, 2009) as a pronounced deprivation in well-being. However, this definition is vague and subject to misinterpretation as the term "poverty" might mean differently to people. Poverty is the state of having little or no money or material possessions. However, the psychology of poverty is beginning to move away from the definition of poverty as the absolute lack of the psychological state humans experience at any point in time. None-the-less, for this study, we will restrict our understanding of poverty to the condition where an individual or household lack the resources, financial or material, to meet the necessities of life. An extension of this could be defined in terms of absolute, relative, rural, situational, or urban nature of the concept. Sen (1993) in his capability approach opined that poverty is a deprivation of a person's capabilities to live the life they have reason to value. Generally, poverty is the lack of the necessities of life, powerlessness, deprivation and inability to make freedom of choice. Poverty comprised of the access to a whole range of living conditions, clean drinking water, proper health and education, good hygiene and sanitation, social, political and economic participation and lack of empowerment for individuals and households in decisions that affect their long term goals of welfare.

Many authors have contributed to the definition of the concept of inequality and have made distinguishing features between income and monetary inequality. The psychologists have also defined social inequality as an uneven distribution of resources in a society where people are ranked in social classes. For this study, however, we will limit our discussion to the disparity of income distribution and allocation where a larger proportion of the wealth of the community is usually held by a smaller percentage of the population. Although income inequality itself is a somewhat ambiguous idea that can be defined in different ways. (Yglesias, 2015). The differences in wealth most often emphasize the disparity in income and consumption. Consumption in this context could be material or non-material assets. Income inequality, on the other hand, is very relevant t to the

notion of equity, justice and equal economic opportunities. Inequality, therefore, is the lack of equal opportunities to social and economic outcomes between the rich and poor in society. Inequality is the function of the distribution of resources which depends on several factors like land, climate and economic location. The distribution of these resources is uneven because these factors differ from place to place in the world. Arjona, *et al* (2003) opined that the distribution of income is a function of the owners of the factors of production and value of the factor.

Nigeria is a middle-income country and it is ranked 27th largest economy in the world in terms of nominal GDP and the 24th largest in terms of purchasing power parity, according to 2018 World Bank estimates. Despite the prevailing economic recession since 2016, Nigeria is still seen as Africa's largest economy and one of the fastest-growing in the world. However, 40% or more than 82 million live on less than a dollar per day, according to the National Bureau of Statistics. Poverty and inequality are visible in the lives of the ordinary Nigerian, while a small group of wealthy individuals enjoys ever-increasing wealth. This paper will attempt to provide a clear picture of the current state of poverty and economic inequality in Nigeria, we will also identify the main drivers of this situation and presents some policy options for the government. Over the past 28 years, the gap between the rich and the poor has been growing in developed and developing countries alike. Oxfam (2015) in its report, portrayed a dismal state of poverty and inequality, that the combined wealth of the five richest Nigerians could end poverty in Nigeria at the national level and that the amount of money earned by the richest Nigerians could lift over two million Nigerians out of poverty for one year.

Globally, half of the world's poorest received only one percent of the total increase in wealth. In Nigeria, the degree of extreme poverty and economic inequality has reached acute levels since 2016, and this can be found in the daily struggles for survival in the majority of Nigerians when compared to the accumulation of wealth by the few. When there is a condition of disparity in income distribution, there is usually a wide gap between the wealth controlled by the different segment of society. However, there are varying types of income disparity and analysis used to understand income inequality. (Kopp, 2019). The different types of divisions in the various income groups when studying income inequality may include the distributions for gender, ethnicity, geographical location, occupation of the people and past income. The wider these distributions, the more this inequality occurs.

Table 1.1: Human Development indices for Nigeria between 2010 - 2019

Year	Population (million)	GDP \$billion (nominal)	GDP per capita (\$bn)	Unemployment Rate % of the total labour force	Health Expenditure % of GDP	Education Expenditure % of GDP
2010	158.5	369.6	2292.4	5.10	3.26	0.91
2011	162.8	414.1	2350.3	6.00	3.29	0.91
2012	167.2	460.9	2385.0	10.6	3.33	0.91
2013	171.7	514.9	2476.9	10.0	3.40	0.91
2014	176.4	568.5	2563.9	7.80	3.33	0.91
2015	181.1	493.84	2563.1	9.00	3.57	0.91
2016	185.9	405.4	2456.3	13.4	3.65	0.91
2017	190.8	376.3	2412.4	17.5	3.56	0.91
2018	195.8	398.2	2396.3	22.6	3.54	0.91
2019	200.1	446.5	2,630.1	23.1	3.62	0.91

Source: Author's compilation based on data from; CBN, NBS, UNDP, UNESCO, World Bank, (2018)

Table 1.1, shows the Nigeria population between 2010 – 2019, nominal GDP in US dollars, GDP per capita, unemployment rate, the total health expenditure as a percentage of GDP and the total education expenditure as a percentage of GDP. This shows

the movement of the various indices in ten years. Our computation shows a steady rise in population and the rate of unemployment. It also shows a fluctuation in the nominal GDP and GDP per capita. In this analysis, the per capita income has been on a downward trend since 2015. While the population has been growing at a steady rate of 2.5% annually, if the nation's GDP were to be equally distributed amongst the population, each person will get per capita income which is higher than the sub-Sahara Africa's countries average. Despite this, 89.2 million Nigerians, about 70% of the population, still live in extreme poverty (UNDP, 2019). Nigeria overtook India as the country with the largest number of people living in extreme poverty thought to be living on less than \$1.90 a day.

Development economics emerged as a sub-discipline of economics in the 1950s and its initial focus was on economic growth, with inequality as a secondary concern. The prevailing accepted belief for many decades was that a period of rising inequality was to be expected in growing developing economies.

“The worst form of inequality is to try to make unequal things equal” Aristotle (384BC – 322BC).

Many scholars have argued that economic and income equality is not feasible, not even in societies that profess egalitarianism. Rising inequality was seen to be more-or-less inevitable and not something to worry about, particularly if the incidence of poverty was falling. Another commonly held view was that policy efforts to reduce inequality were likely to impede growth and (hence) poverty reduction (Ravallion, 2014). Since the beginning of the development path for most developing countries of Africa, Asia, South America and the Middle East, there has been this misconception that development is equated with a growth in the annual GDP. There cannot be any meaningful economic development if the growth in the national incomes has not trickled down to the citizens of these countries. This is the fundamental step to reducing poverty and income inequality.

Africa has made impressive economic progress in the 2000s. Several developing countries sustained double-digit growth. Strong macro-economic performance provides an opportunity, on the one hand, to reduce poverty and on the other hand, to reconcile the differences between revenues by strengthening a strong middle class. However, Africa still grapples with unequal income and wealth distribution. The poor performances, in terms of reducing inequality, are not specific to resource-poor countries only, but also a feature of those countries endowed with both natural and mineral economic resources such as the Congo, Nigeria, Angola and South Africa (AEO, 2011). The types of inequality can be identified as Life, Social, Political, Wealth, Gender and Educational, Racial Inequality.

Since the beginning of the developmental curve of most developing countries, human capital formation and human capital development and access to global trade and other factors have been the bane of the growth process. Since the early 1970s, international migration has played a major role in reducing economic inequality among nations through the movement of labour and capital. Technology and Globalization have also been a major driver of these changes in social-economic inequality. Several observers have argued that globalization has altogether reduced inequality between countries and increased it within them Bourguignon (2016) and Milanovic (2016). While the role of globalization in determining global inequality is not the topic of this discourse, it can be noted that its role and contribution is not in doubt. Some of the causes of income inequality are growing in technology which widens the income gap, gender disparity, wages that are determined by the labour market, educational attainment which is a function of higher wages and incomes and personal factors.

The major reasons why income inequality has become a major political issue is mainly due to globalization and the rise in technological breakthroughs. Whereas globalization has reduced global inequality, it has raised the level of within nations. Over 70 percent of the world’s adults own under \$10,000 in wealth, the larger proportion of global wealth is skewed in favour of the lower 30 percent. Western and European countries host the lion share of the world’s millionaires. More than 70% of the world’s millionaires reside in Europe or North America, with 43% of these millionaire calling the United States home. The only non-Western nations with a significant share of millionaires are the industrial powerhouses of Japan, China and South Korea.

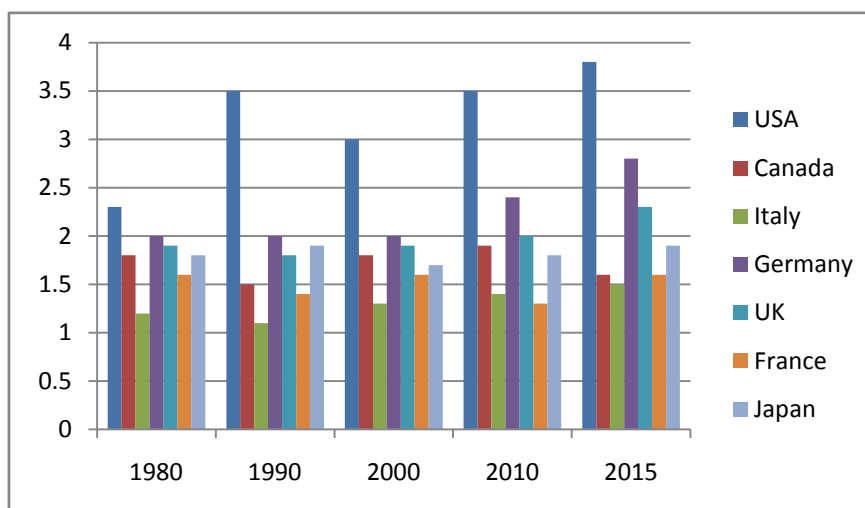
Figure 1.2. Chart of Global top 10 Billionaires vs World Gross Domestic Product, 2016.



Source: IPS analysis of Forbes’ 2016 Billionaires list and IMF 2016 GDP Projections.

Figure 1.4, shows the analysis of the global top ten billionaires in comparison with the world gross domestic product in 2016. The worlds’ top ten billionaires own a combined wealth of \$505 billion. This amount is greater than the combined GDP of most countries in sub-Saharan Africa.

Figure 1.5: Bar chart of Share of Income Earned by Top 1Percent, 1975-2015.

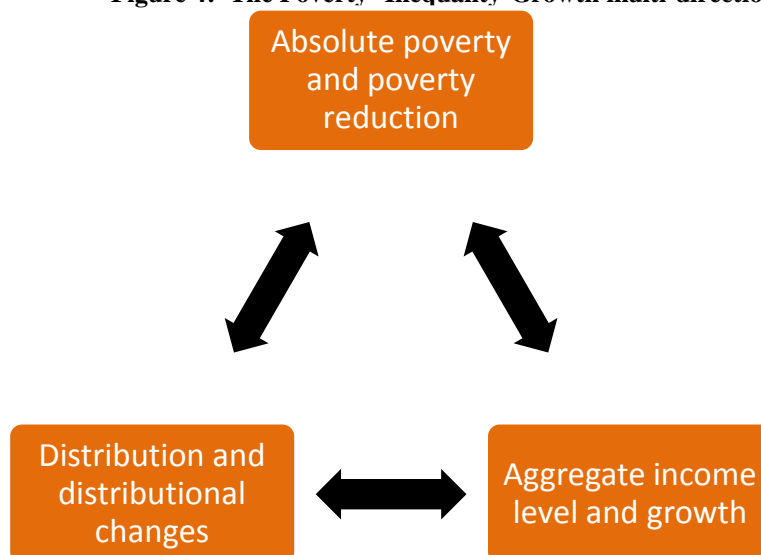


Source: Author’s reproduction of World Health and Income Database, 2017.

Figure 1.5 shows the share of income earned by the top global one percent. Since 1980, the World Inequality Report data has shown that the share of national income going to the richest 1 percent has increased rapidly in North America (defined here as the United States and Canada), China, India, and Russia and more moderately in Europe. World Inequality Lab researchers note that this period coincides with the rollback in these countries and regions of various post-World War II policies aimed at narrowing economic divides. By contrast, they point out, countries and regions that did not experience a post-war egalitarian regime, such as the Middle East, sub-Saharan Africa, and Brazil, have had relatively stable, but extremely high levels of inequality. Effects of income inequality, researchers have found, include higher rates of health and social problems, and lower rates of social goods, lower population-wide satisfaction and happiness and even a lower level of economic growth when human capital is neglected for high-end consumption. Rising income inequality hurts everyone, even the rich (Ingraham, 2018). This has created a wider income gap between the rich and the poor countries, the developed and the developing. The overall effect is rising poverty levels, rising crime rates, rising international migration from the developed countries to the developed, social injustice, social deprivation, and low self-esteem.

Poverty, Income inequality and growth interact with one another in several ways. In the past, some observers have argued that economic growth is not sufficient to reduce poverty in developing countries. In the past two decades, Nigeria’s GDP has grown from \$69.45 billion in 2000 to \$420.00 billion in 2020. However, the poverty rate has averaged 60% in twenty years. Although Nigeria is one of the most rapidly growing economies in sub-Saharan Africa, she is struggling to translate this growth into accelerated poverty and inequality reduction. Relative to poverty reduction, in the rest of sub-Saharan Africa and other lower-income countries, poverty reduction in Nigeria has been less responsive to economic growth. Chenery (1974) opined that more than a decade of economic growth in underdeveloped countries, there has been of little or no benefit to a larger share of the population. Adelman and Morris (1973) argued that development is accompanied by an absolute as well as a relative decline in the average income of the very poor. In the Kuznets hypothesis (1955, 1963), he claims that growth and inequality are related in an inverted U-shaped curve: In the early stages of development, income distribution tends to worsen and does not improve until countries reach middle-income status. The implication of this is that in the early stages of development, economic growth leads to more inequality, then poverty might take many years to decline in the developing world.

Figure 4: The Poverty- Inequality-Growth multi-directional Cycle



Source: Author's reproduction of Bourguignon (2004) Poverty-Inequality-Growth Triangle.

Figure 4, shows the relationship between poverty, inequality and growth. This development strategy shows the interaction between growth and income distribution in reducing poverty. Bourguignon (2004) suggested that this relationship is based on the idea that development strategy should be guided by the goal of reducing absolute poverty, which can be a country-specific combination of growth and distribution policies.

1.1. Objectives of this Study

The broad objective of this research is to examine the effect of government policies on poverty and income inequality in Nigeria. This objective is set to be achieved through the following specific objectives, to:

1. Examine the short-run effects of government policies on poverty reduction and income inequality in Nigeria.
2. Examine the long-run effects of government policies on poverty reduction and income inequality in Nigeria.
3. Examine the causal relationship between economic growth, poverty and income inequality in Nigeria.

1.1 Research Questions and Hypotheses

The following relevant questions will be answered in the course of the research:

1. What is the relationship between government policies and poverty reduction in Nigeria?
2. What is the relationship between government policies and income inequality in Nigeria?
3. What is the relationship between economic growth and poverty reduction in Nigeria?
4. What is the relationship between economic growth and income inequality in Nigeria?.

1.2. Research Hypotheses

1. H_0 : The relationship between government policies and poverty reduction in Nigeria is not significant.
2. H_0 : The relationship between government policies and income inequality in Nigeria is not significant.
3. H_0 : The relationship between economic growth and poverty reduction in Nigeria is not significant.
4. H_0 : The relationship between economic growth and income inequality in Nigeria is not significant.

1.3 Scope of the Study

This research work examines the impact of macroeconomic variables on poverty reduction and income inequality in Nigeria. The period under investigation is from 1991 to 2018. The major reason for the period under review is that statistical facts show that Nigeria has been experiencing increasing poverty rates and widening income inequality since the early 1990s at the time when the country was experiencing persistent growth in her GDP. The selected period recorded an increasing income gap as a result of rising poverty levels which was put at 50 percent of the population who live under extreme poverty. At this period, the economy grew without a corresponding improvement in the welfare and living conditions of Nigerians. The national development plans also did not achieve its desired objectives. This period also represents the time when numerous poverty alleviation programmes such as DFFRI, NALDA, NDE, Better Life For Rural Women Programme, Compulsory Free Primary Education, River Basin Development Authorities, Agriculture

Development Programmes, Green Revolution, etc, all to bridge the widening income gap and reduce poverty levels.

II. CONCEPTUAL, THEORETICAL AND EMPIRICAL REVIEW

There is a global concern that the growth in the economy of most developing countries has not impacted on the lives of and create the necessary conditions for improving the welfare of citizens, but rather this has widened the income gap between the rich and the poor (OECD, 2020). Rohwerder (2016) identified that income consumption poverty refers to a lack of monetary resources to meet demands. Absolute poverty, on the other hand, is poverty below a certain threshold required to meet the basic survival needs. Relative poverty, however, is set with others. That is, a person can be poor in a relative sense, even if he is not in an absolute sense. However, this is measured in relations to members of society and differs from country to country. Haughton and Khandker (2009) defined poverty as a pronounced deprivation in well-being. This deprivation can be linked to access to commodities, whether households or individuals have sufficient means to meet their basic needs. Those who suffer from deprivation lack freedom of choice and are more exposed to the adverse effects of economic hardship. Sen and Chant (2010) and Coudouel (2002) opined that income and consumption are generally defined at the household level and do not take into account variations which obscure individual poverty. A broader concept of poverty include such things as, physical and mental health, agency and participation, social connection, competence and self-worth and values and meaning (Wellbeing & Poverty Pathways, 2013)

Inequality refers to disparities, unequal distribution of incomes and opportunities, discrepancies in areas such as income, wealth, education, health and social identity and participation amongst different groups and society. Inequality of opportunities is the differences in people's background or circumstances that condition what they can achieve. Poverty is related to inequality but different. Haughton & Khandker (2009) revealed that inequality is concerned with the full distribution of well-being and poverty is focused on the lower end of the distribution only. In its report of 2013, UNICEF observed that inequality can exist in a variety of spheres such as income, wealth, education, health and nutrition (UNICEF & UN Women, 2013). Economic inequality is often found in conjunction with other social inequalities faced by people marginalised because of identities such as gender, disability, race, ethnicity, caste, religion or language, resulting in intersecting, and mutually reinforcing (Kabeer, 2010) and (World Bank, 2013). These socially excluded groups often suffer from an unequal distribution of resources and services as they tend to be concentrated in disadvantaged locations. The social, economic and spatial inequalities also contribute to political inequalities (UNDP, 2013).

Opportunities are harder to observe and measure than outcomes and are seem to be more as a result of 'circumstances' than outcomes, which may arise from people's efforts (World Bank, 2006). Inequality of opportunities is generally regarded as not based on set principles, while the impartial and just treatment of inequality of outcomes is more contested (Barros et al., 2009). Literature abounds that focuses on the direction of causality between outcomes and opportunities. Discussions and studies on social epidemiologists and psychologists who aimed to provide proof on how to reduce inequalities arising from some social factors such as, education, poverty, and social-economic discrimination (Glymour and Hamad, 2018). For those born into relatively disadvantaged households, increasingly unequal outcomes mean fewer opportunities to live a fulfilling life (UNDP, 2013). Inequality can be understood at different levels (Milanovic, 2012). It occurs within countries, and between different countries, either taking into account population weighting or not (Milanovic, 2012). Global inequality, on the other hand, looks at the differences in income between all individuals in the world rather than between countries, recognizing the different levels of inequality within countries. It also involves the concentration of vital resources needed for growth and development in certain countries that significantly impacts the lives and opportunities for individuals and households in poorer and less vulnerable countries. Each different understanding of inequality has different consequences for establishing changes in inequality levels (Milanovic, 2012).

The first target under seventeen goals of the Sustainable Development Goals (SDG) 1 of the 2030 Agenda is the eradication of extreme poverty for all people everywhere. The projection is that by 2030, there will be zero poverty. Poverty by this is currently measured as people living on less than \$1.25 per day. Poverty is a state of having little or no money and few or no material possession. It is the lack of minimum food and shelter required to meet the basic needs of life. Most significantly this is referred to as absolute poverty. United Nations (1998) defined poverty as the denial of choices and opportunities, a violation of human dignity. It also means not having enough to feed and clothe a family. Kellog (2018) identified three top effects of poverty; poor health, crime and lack of education. In the analysis, it was observed that people who live below the poverty line and do not have access to sufficient economic opportunities live by any dangerous means necessary. Globally, millions of people in developing countries suffer from poverty-related health conditions as ravaging infectious diseases affects millions of people a year. UNDP (2016) in the concept and measurement of poverty observed

that an international poverty line is typically used in cross-country comparisons of poverty levels and international agreements.

The National Bureau of Statistics, in its September 2018 to October 2019 report, stated that 40 percent of people in the continent's most populous country lived below the poverty line of N137,430 (\$381.75) a year. This figure represents 82.9 million Nigerians. In Nigeria, an average of four out of ten individuals has real per capita expenditure below the global average. The World Bank (2019) in its report observed that the level of economic growth is too low to lift the bottom half of the population out of poverty. The population growth rate outstrips the growth rate of the Nigerian economy. Ucha (2010) identified unemployment, non-diversification of the economy, income inequality, laziness and a poor education system as the major contributing factors to poverty in Nigeria. Kazeem (2018) observed that the United Nation's Sustainable Development Goal (SDG) to end extreme poverty by 2030 is unlikely to be met, in large part, to the poverty situation in Nigeria. As Nigeria faces an increasing population growth, a minimum of 2.5% annually, the poverty problem is likely to worsen. In its 2020 international report, OXFAM noted that the inequality gap in Nigeria is so wide that it has reached an extreme level, despite being the largest economy in Africa. This gap is worse than what can ever be imagined. At the national level, five million Nigerians face hunger and the combined wealth of the five richest could lift these Nigerians out of poverty. The amount of money that the richest Nigerian can earn annually from his wealth is sufficient to lift two million Nigerians out of poverty in a year.

Within the sociological perspective, there are two main views of social inequality Davis and Moore (2012). One view aligns with the functionalist theory and the other aligns with conflict theory. While the former believes that inequality is inevitable and desirable and plays an important function in society by stratification which is functional for society and a source of social order, the latter believes that inequality results from groups with power dominating less powerful groups, that is, social stratification is dysfunctional and harmful to society and that inequality persists because it benefits the rich and powerful. Kaldor (1957) put forward a set of facts on growth and distribution for the developed economies. The most prominent of these was the constancy of the share of capital relative to that of wealth in national income. Kuznet (1955) also put forward a set of fact that while the rate of income distribution might increase in the early stages of development, it declines as the developed economies mature. Kanbur and Stiglitz (2015) observed that the Kaldor-Kuznet sterilized facts no longer hold for the developed economies because the share of capital as measured has been on the rise so also with inequality of income and wealth. There is the need to break away from competitive marginal productivity theories of factor returns and model mechanisms which generates rents with consequences of wealth inequality. There is also the need to further develop normative theories of equity which can address mechanisms of inequality transmission from generation to generation.

There is ample literature explaining the relationship between poverty, inequality and economic growth. Many authors have shared the views that while there is a positive correlation between economic growth and poverty reduction, others findings have also shown that as the economy grows, this results to a widening gap in inequality. Okhiria and Obadeyi (2015) in their study on poverty in Africa, empirical evidence of Nigeria, using a simple correlation technique concluded that he blame of poverty is placed on the mode of designing and implementing developmental programmes which have failed to take the basic needs of the poor as a priority. Akinyemi, Loto and Enilolobo (2019) examined poverty and inequality in Nigeria, implications for inclusive growth between 1980 and 2013, using the ordinary least squares, they were able to show that as the economy grows, the public spends more money to improve healthcare services, inequality rises and poverty reduces. Thus government expenditure impacts negatively on inequality but positively on poverty. Akinbobola and Saibu (2007) examined income inequality, unemployment and poverty in Nigeria. Using the vector autoregressive approach, the findings revealed a reduced unemployment rate improves human development and consequently reduces poverty. It further revealed that as growth in public expenditure rises, unemployment falls and the human development index improves.

In a study done on global poverty and inequality, Ferreira and Ravallion (2008) drew a compilation of data from household surveys representing 130 countries, over a twenty-five year period, showed a negative correlation between both poverty and inequality indices on the one hand, and mean income per capita on the other. They concluded that absolute poverty is a bigger problem in developing countries than in developed ones. However, the evidence from the available cross-section of developing countries suggests that there is little aggregate tendency for these inequality levels to fall with economic growth. Recent studies have also thrown more light on the relationships between poverty, inequality and growth in the economies of developing countries. McKnight (2019) reviewed empirical evidence on the relationship between poverty, inequality and economic growth. It finds evidence that economic inequality is good for growth. However, in the comparison between countries with a wider gap between the rich and poor, there tends to be a higher incidence of social ills. Delhey and Steckermeier (2020) in his cross-national study done for forty high-income countries, showed the influence of income inequality and affluence on the amount of health and social problems in rich countries. His

findings suggest that inequality is bad for society but economic prosperity is good for the overall health of the economy.

Economic growth in Nigeria has always been associated with income inequality; and a difference in income will therefore decrease the national output, leading to a reduction in economic growth. As such, government policies which focus on redistribution of economic gains to the people, especially to those at the bottom of the income distribution, are required. Economic achievements will allow them to invest in human capital or physical capital, which offers a high rate of return. Therefore there is a need for the government to initiate macroeconomic policies that will alleviate the high levels of poverty and the ever-widening gap between the rich and poor in Nigeria.

III. THEORETICAL FRAMEWORK / METHODOLOGY AND MODEL SPECIFICATION

The theoretical framework for this study will be based on the extended Solow growth model. A major strength of the Solow growth model is the inbuilt mechanism to decompose capital into different components without violating its assumptions. This will allow the incorporation of policy variables as discussed in the Keynesian, Neo-classical and Mundell-Fleming models. The Solow model is also amenable to the time series data. The theoretical framework conventionally begins with the Cobb-Douglas production function expressed as output (Y) is a function of capital stock (K) and labour(L):

$$Y = f(K,L), f' > 0, f'' < 0 \tag{3.12}$$

Y in (2.1) represents the economic output and the determinants are limited to labour (employee, entrepreneur) and capital (human and physical).

In the extended Solow version of the model, equation (3.1.2) can be enlarged to include productivity:

$$Y_t = A_t f(K_t, L_t) \tag{3.13}$$

Where Y_t , K_t , L_t and A_t are Output growth, capital stock, labour force and productivity respectively in year t .

In the exponential form of (3.13), we have:

$$Y = A k^\varphi L^{1-\varphi} \tag{3.14}$$

Where A measures the state of technical progress. Dividing both sides of (3.14) by L , we have $Y/L = y$ and $K/L = k$, then we write the following equation thus:

$$Y = A k^\varphi \tag{3.15}$$

In this case, Y denotes output-labour ratio and k denotes capital-labour ratio. Equation (3.15) represents the Solow growth model with population growth and hence, labour force growth.

Thus: $k = sY - (N + \square)k$, where $0 < s, \square < 1$ (3.16)

From equation (3.12) to (3.16), relative to economic output, is that labour and capital are the primary factors in economic growth and the qualitative type of these two inputs are obtained from the national savings from national incomes over time. Policy inputs can be added into the model by enlarging equation (3.15).

We have:

$$Y = ZG^p K^{1-p} \tag{3.17}$$

Where p represents the proportion of policy inputs, that is monetary, fiscal and trade policies and $1-p$, is the proportion of private capital inputs. k in equation (3.17) is the privately provided capital broader than the capital-labour ratio in equation (3.15).

If we take the log-linear form of equation (3.17), we have:

$$Y = Z + p \text{Log } G + 1 - p(\text{log } k) \tag{3.18}$$

In this paper, I develop a model for Nigeria and use the model to estimate the effect of government policy instruments on poverty reduction and income inequality in Nigeria. The policy instruments include those omitted in the previous studies. These include GDP per capita, economic openness, unemployment rate, adult literacy rate, agricultural participation rate, amount of government expenditure on healthcare and education and Inflation rate. Time series data ranging from 1991 and 2018 are employed for measurement and coefficient estimation of the short run and long run linear equations set. From the equation set, the causal relationship between the variables will also be examined.

To this end, this study specifies a simple model below to deal with the impact of macroeconomic variables on poverty reduction and income inequality. In our model, we will specify two equations to represent: macroeconomic variables on poverty and inequality.

1. Macroeconomic variables on poverty:

$$PR_t = f(\text{GDP}_t, \text{OPEN}_t, \text{UNP}_t, \text{EDN}_t, \text{LIT}_t) \tag{3.19}$$

2. Macroeconomic variables on inequality:

$$IER_t = f(\text{GDP}_t, \text{INF}_t, \text{HCE}_t, \text{EDN}_t, \text{LIT}_t, \text{APR}_t) \tag{3.20}$$

The models developed in this study follows previous authors literature and theoretical views as discussed in the background of this study, earlier. It is an augmented version of the Keynesians model which relates policy instruments with the real sector.

From equation (3.19), where all variables are in logarithm can be expressed as:

$$\ln PR_t = \alpha_0 + \alpha_1 \ln GDP_t + \alpha_2 \ln OPEN_t + \alpha_3 \ln UNP_t + \alpha_4 \ln EDN_t + \alpha_5 \ln LIT + \epsilon_t \quad (3.21)$$

Where:

PR = Poverty rate at time *t*

GDP = GDP growth rate at time *t*

OPEN = Economic openness(ratio of export to import) at time *t*

UNP = Unemployment rate at time *t*

EDN = Amount of government expenditure on education at time *t*

LIT = Literacy rate at time *t*

ϵ_t = Error term

From equation (3.20), where all variables are in logarithm, can be expressed as:

$$\ln IER_t = \alpha_0 + \alpha_1 \ln GDP_t + \alpha_2 \ln INF_t + \alpha_3 \ln HCE_t + \alpha_4 \ln EDN_t + \alpha_5 \ln LIT + \alpha_6 \ln APR_t + \epsilon_t \quad (3.22)$$

Where:

IER_t = Income inequality rate at time *t*

GDP = GDP growth rate at time *t*

INF = Inflation rate at time *t*

HCE = Level of government expenditure on healthcare at time *t*

EDN = Amount of government expenditure on education at time *t*

LIT = Literacy rate at time *t*

APR = Agriculture participation rate at time *t*

ϵ_t = Error term

The simple OLS technique is employed to examine the relationship between macroeconomic variables on poverty and income inequality in Nigeria.

The data to be used are secondary and are annual time series covering 1991 – 2018.

They were obtained from the following reliable institutions:

- a. The Central Bank of Nigeria (CBN) statistical bulletin 2018
- b. CBN Annual Report and Statement of Account, various Issues.
- b. The National Bureau of Statistics 2015, Annual Abstract of Statistics.

IV. DATA PRESENTATION AND ANALYSIS

4.0 Data Analysis

This chapter gives the data presentation of our empirical analysis on the impact of macroeconomic variables on poverty reduction and income inequality in Nigeria making use of both descriptive and inferential analysis with a further discussion and comparison of the result with previous findings. Whilst the econometric analysis was analyzed through the use of Ordinary Least Square Model technique, moreover, the descriptive analysis was examined making use of the summary of statistics of the variables. The econometric tool of Econometric-View (E-VIEW) statistical package was used in conducting both analyses.

4.1 Descriptive Analysis

The study begins with a descriptive analysis of all the variables. The observation of the study made use of a sample of 28 years spanning from 1991-2018.

Table 4.1 Summary of Statistics

	POV	GDP	OPEN	UNP	EDN	LIT	IER	INF	HCE	APR
Mean	78.5142 9	37325.7	37.6198 4	4.14357 1	149.098 3	55.3623 7	43.5785 7	19.1279 4	88.54795	44.2843 2
Median	78.3458 3	19795.6 4	38.753	3.9525	81.6639 9	55.0819	42.3138 9	12.0748 1	48.14221	45.2335
Maximum	82	127762. 5	53.2779 6	6.237	465.301 1	62.0160	51.9	76.7588 7	296.4428	50.172
Minimum	75.2	596.044 7	20.7225 2	3.424	0.29129 8	51.0776 6	39	0.22360 6	0.150161	36.616

Std. Dev.	2.04804 9	39701.3	8.74283 5	0.77219 4	149.597 6	2.54538 6	3.60755 1	17.9588 3	95.31485	4.95045 1
Skewness	0.09063 4	0.86979 1	- 0.14653	1.82736 8	0.74407 5	0.93184 6	0.85465 9	2.00639 6	0.816747	0.31192
Kurtosis	1.78412 7	2.41613 7	2.46492 1	5.05905 4	2.06834 5	3.81942 3	2.59718 2	6.02360 9	2.209216	1.52001 3
Jarque-Bera	1.76307 3	3.92821 8	0.43422	20.5295 9	3.59633 4	4.8356	3.59803 1	29.4521 7	3.842585	3.00945 3
Probability	0.41414 6	0.14028 1	0.80484 1	0.00003 5	0.16560 2	0.08911 7	0.16546 2	0	0.146418	0.22207 8
Sum	2198.4	1045119	1053.35 6	116.02	4174.75 1	1550.14 6	1220.2 3	535.582 3	2479.343	1239.96 1
Sum Sq. Dev.	113.251 6	4.26E+1 0	2063.80 3	16.0996 4	604244. 8	174.932 7	351.389 4	8708.02 8	245292.9	661.688
Observations	28	28	28	28	28	28	28	28	28	28

Source: Author's computation based on the data obtained from the CBN 2019

Table 4.1 presents the descriptive statistics of all the variables used for the study and from the results obtained it is indicated that there was a positive mean value of all variables used in this analysis. This implies an increasing trend for all variables for the period under study (1991 – 2018)

The maximum and minimum values indicate the highest points and lowest points of the variables throughout the period. The highest value for poverty gap during the period under study was 82 which occurred recently in 1996 while the lowest rate was recorded at 75.2 in the year 2018 which shows a drop in the rates as at 2018.

Furthermore, the highest value for GDP was 127762.5 (₦ Billion) occurred in the year 2018 while its lowest value of 596.0447 (₦ Billion) was in 1991. Hence, GDP variable has been on the increase.

Trade openness reached its peak in 2011 at 53.27796% in 2011 while its lowest value of 20.72252% occurred was in 2016. Hence trade openness has been on the decline since 2016.

The unemployment rate was at its highest at 6.237% in 2016. Its lowest value was at 3.424% in 2008. Hence, the rate of unemployment can be said to have been decreasing up to 2008, before rising again.

On government expenditure on education, the figure of 465.3011 (₦ Billion) reached its highest value in 2018, while the lowest value was in 1992 at 0.291298. This is a significant increase.

The literacy rate was at 62.02% in 2018 and its lowest value was at 51.078% in 2008. This trend shows a recent increase.

Income inequality reached its highest value in 1996 at 51.9 while its lowest value was 39 in the year 2018. This shows a decline in the level of income inequality.

The level of inflation rate reached its highest rate in 1994 at 76.76 while its lowest rate was in 1999 at 0.22.

The highest value for government expenditure on healthcare was 296.4428 (₦ Billion) in 2018 while its lowest value of 0.150161 (₦ Billion) took place in the year 1992. Hence, the variables have been experiencing an increasing trend during the period 1991 – 2018.

Agricultural participation rate on the other hand reached was at its highest 1992 at 50.172 while its lowest rate was attained in the year 2018 at 36.616; this shows a decreasing trend.

The standard deviation indicated that the variables have been fluctuating over time given their level of unconditional volatility.

In terms of skewness, all the variables were shown to be positively skewed from the normal distribution point except for trade openness (-0.14653) and agricultural participation rate (-0.31192) which were negative.

The kurtosis values of the Unemployment rate (3.819423), Literacy rate (6.023609) and inflation (3.073343) which have their values to be above the critical mark of 3, the normal distribution point, indicates that they are mostly clustered around their mean.

Also, the Jarque-Bera probability of Unemployment rate (0.000035), Inflation rate (0) and interest rate (0.000513) which have its value to be less than the 5% level of significance ($P < 0.05$) further reveals a statistically significant deviation of the variable from normality.

Table 4.2: Ordinary Least Square Model (OLS) Regression Result

Dependent Variable: PVR				
Variable	Coefficient	Standard Error	T-statistic	Prob.
C	36.14435	17.73598	2.037912	0.0538
LOG(GDP)	1.322465	0.497275	2.659425	0.0143
OPEN	0.058914	0.028431	2.072226	0.0502
UNP	-1.102107	0.908458	-1.213163	0.2379
EDN	-0.025470	0.005638	-4.517254	0.0002
LIT	0.646071	0.319988	2.019048	0.0558
R-squared	0.788761	F-statistic	16.42946	
Adjusted R ²	0.740752	Prob(F-statistic)	0.000001	
Durbin-Watson stat	1.244225			

Source: Author's Computation (2020)

Estimated Coefficients:

$$POV = 36.14 + 1.32 \text{ LOG(GDP)} + 0.059 \text{ OPEN} - 1.10 \text{ UNP} - 0.026 \text{ EDN} + 0.65 \text{ LIT}$$

Where,

- PVR = Poverty rate
- LOG(GDP) = Log of Gross Domestic Product
- OPEN = Trade openness
- UNP = Unemployment rate
- EDN = Amount of government expenditure on education
- LIT = Literacy rate

The ordinary least square model is presented in Table 4.4 shows the impact of macroeconomic variables on poverty reduction in Nigeria and given their economic *a priori*, it was observed that all the variables did conform to the expectation except for EDN which was reported to be negatively related with poverty rate.

The coefficient of the variables shows that LOG (GDP) had a positive and significant effect on the poverty rate. Hence, despite the increase in the growth of the economy poverty gap could still increase by 1.32 units.

However, the coefficient of OPEN had a positive but insignificant impact on the poverty gap; which means that every one-unit increase in openness to trade, the poverty gap increases by 0.0589 units.

Moreover, the coefficient of UNP had a negative but insignificant impact on POV; which means that every one-unit increase in the unemployment rate, poverty rate decreases by 1.1021 units.

Furthermore, the coefficient of EDN indicated that the variables had a negative and significant impact on the poverty gap. Thus for every one-unit increase in government expenditure on education, poverty gap decreases by 0.0255 units in the long run.

Meanwhile, the coefficient of literacy rate indicated the variables had a positive but significant impact on POV. This means that for every one-unit increase in literacy rate, there is a corresponding increase in the Poverty rate in the by 0.6461 units respectively though trivially.

The R² (coefficient of determination) shows that approximately 78.9 % of the total variation in the dependent variable (POV) can be explained by the explanatory variables and this drops to approximately 747 % after adjusting for degree of freedom which is still high.

More so, from the result, the DW (Durbin-Watson) statistic of approximately 1.24 which is closer (1.5) is an indication that first-order positive serial autocorrelation is slightly present.

It was as well reported that the F-statistic reported in Table 4.2 which gives the goodness of fit of the model was approximately 16.42 with a corresponding probability value of 0.000001. The significance of these values implies that the data used in the estimation fitted well into the regression equation, hence the model is adequate in explaining the joint significant impact of the independent variables on poverty gap in Nigeria.

**Table 4.3: Ordinary Least Square Model (OLS) Regression Result
Dependent Variable: IER**

Variable	Coefficient	Standard Error	T-statistic	Prob.
C	42.15401	37.11911	1.135642	0.2689
LOG(GDP)	-0.920404	1.216994	-0.756293	0.4579
INF	0.002738	0.039433	0.069445	0.9453
HCE	-0.001152	0.030958	-0.037222	0.9707
EDN	-0.001936	0.020042	-0.096601	0.9240
LIT	0.045484	0.323583	0.140564	0.8896
APR	0.183323	0.519547	0.352852	0.7277
R-squared	0.563889		F-statistic	4.525485
Adjusted R ²	0.439286		Prob(F-statistic)	0.004293
Durbin-Watson stat	1.260857			

Source: Author's Computation (2020)

Estimated Coefficients:

$$IER = 42.1540 - 0.92040 \text{ LOG(GDP)} + 0.0027 \text{ INF} - 0.0012 \text{ HCE} - 0.0019 \text{ EDN} + 0.0455 \text{ LIT} + 0.1833 \text{ APR}$$

Where,

- IER = Income Inequality rate
- LOG(GDP) = Log of Gross Domestic Product
- HCE = Level of government expenditure on healthcare
- EDN = Amount of government expenditure on education
- LIT = Literacy rate
- APR = Agriculture participation rate

The OLS model is presented in Table 4.3 shows the impact of macroeconomic variables on income inequality in Nigeria and given their economic *a priori*, it was observed that all the variables did conform to the expectation except for LIT and APR which were reported to be positively related with Income Inequality.

The coefficient of the variables shows that LOG (GDP) had a negative, but insignificant effect on IER. Hence, a unit increase in economic growth has the potential to reduce income inequality by 0.9204 units.

However, the coefficient of INF had a positive but insignificant impact on IER; what this means is that every one-unit increase in the inflation rate, income inequality tends to increase by 0.0027 units.

Moreover, the coefficient of HCE had a negative but insignificant impact on IER; which means that every one-unit increase in government expenditure in the health sector, income inequality can reduce by 0.0012 units.

In a similar vein, the coefficient of EDN indicated that the variable had a negative but significant impact on IER. Thus for every one-unit increase in government expenditure on education, the level of income inequality can reduce by 0.0019 units.

Meanwhile, the coefficient of LIT indicated the variable had a positive but insignificant impact on IER. This means that for every one-unit increase in literacy rate, income inequality could increase by 0.0455 units though trivially.

Also, the coefficient of APR indicated the variable had a positive but insignificant impact on IER. Thus despite an increase in the agriculture participation rate, income inequality could still increase by 0.1833 units though minimally.

The R² (coefficient of determination) shows that approximately 56.4 % of the total variation in the dependent variable (IER) can be explained by the explanatory variables and this drops to approximately 43.9 % after adjusting for degree of freedom which is still high.

More so, from the result, the DW (Durbin-Watson) statistic of approximately 1.26 which is closer to (1.5) is an indication that first-order negative serial autocorrelation is absent.

The F-statistic also reported in table 4.2 which gives the goodness of fit of the model was approximately 4.5255 with a corresponding probability value of 0.0043. The significance of these values implies that the data used in the estimation fitted well into the regression equation, hence the model is adequate in explaining the joint significant impact of the independent variables on income inequality in Nigeria.

4.2 Test of Hypothesis

Hypothesis One

H_0 : The relationship between economic growth and poverty reduction is not significant in Nigeria.

Decision rule:

If the p-value of GDP in table 4.2 is < 0.05 (5%), we reject H_0 . Otherwise, we accept H_0 .

Since the p-value of LOG (GDP) (0.0143) is < 0.05 , we hereby reject H_0 and conclude that the relationship between economic growth and poverty reduction is significant in Nigeria

Hypothesis Two

H_0 : The relationship between economic growth and income inequality is not significant in Nigeria.

Decision rule:

If the p-value of GDP in table 4.52 is < 0.05 (5%), we reject H_0 . Otherwise, we accept H_0 .

Since the p-value of LOG(GDP) (0.4579) is > 0.05 , we hereby fail to reject H_0 and conclude that economic growth does not have a significant relationship with income inequality.

Hypothesis Three

H_0 : There is no significant relationship between government policies and poverty reduction in Nigeria.

Decision rule:

If the p-value of EDN in table 4.2 is < 0.05 (5%), we reject H_0 . Otherwise, we accept H_0 .

Since the p-value of EDN (0.0002) is < 0.05 , we hereby reject H_0 and conclude that government policies in the form of expenditure on education play a significant role in poverty reduction in Nigeria.

Hypothesis four

H_0 : There is no significant relationship between government policies and income inequality in Nigeria.

Decision rule:

If the p-value of HCE in table 4.5 is < 0.05 (5%), we reject H_0 . Otherwise, we accept H_0 .

Since the p-value of HCE (0.9707) is > 0.05 , we fail to reject H_0 and conclude that that government policies in the form of expenditure on health do not play a significant role on income inequality in Nigeria.

4.3 Summary of Findings

The findings obtained in this study highlight the impact of government policies on the reduction of poverty and income inequality in Nigeria. To achieve the study-specific objectives, the OLS method was employed to estimate the relationship between government policies on poverty and income inequality. The estimates of the relationships between economic growth and poverty and income inequality were also obtained. From the empirical results above one can deduce that while economic growth played a significant role in reducing the gap in income inequality, this reduction has not, however, translated to a reduction in poverty rates. Although, the result shows government policies generally produced a consistent result on economic growth. The result also shows that government policies were consistent with both reducing the poverty gap and income inequality. The positive but insignificant relationship between literacy rate and the agricultural participation rate is an evidence of the persistent challenges facing adult literacy in the country as well as poor agricultural participation in the country which is large, rural, crude and subsistence. This is substantiated by the positive relationship between inflation rate and income inequality which is detrimental to the growth of local agricultural output as this add to the high production cost inputs that have a negative impact on agricultural investment and ultimately reduce agricultural output and increase poverty and income gap.

Furthermore, the result from table 4.2 was indicative of the fact when the unemployment rate has reduced the level of poverty gap in the economy tend to reduce.

The findings obtained from our study are in line with previous studies and the results show that government policies have a negative impact on poverty and the results on inequality was in line with similar results obtained by Akinyemi, Loto and Enilolobo (2019) who examined poverty and inequality in Nigeria, implications for inclusive growth between 1980 and 2013, using the ordinary least squares, they were able to show that as the economy grows, the public spends more money to improve healthcare services which reduces poverty. Thus government expenditure impacts negatively on inequality.

The result from our study that shows unemployment having a negative effect on poverty is in line with the past findings obtained by Akinbobola and Saibu (2007) who examined income inequality, unemployment and poverty in Nigeria and revealed that a reduced unemployment rate improves human development and consequently reduces poverty. It further revealed that as growth in public expenditure rises, unemployment falls and the human development index improves.

V. CONCLUSION

This study examined the impact of macroeconomic variables on poverty and income inequality in Nigeria spanning 27 years, from 1991 to 2018. Nigeria has been a nation seeking economic growth and

development since its independence in 1960. This desire has been a mix of socio-political and economic burden. Although Nigeria has recorded steady growth in its economy since the beginning of the new democratic dispensation, in 1999, this growth has not played any significant role in addressing the high rate of poverty and income inequality which has characterized her as one of the least developed countries in sub-Saharan Africa and the poverty-capital of the world. Poverty reduction and inequality have been a major focus of government over the years and some macroeconomic variables have been used to address this. This study, therefore, examines the impact of these variables poverty and inequality. The result of this study shows that the government will still need to play a more significant role in addressing poverty and income inequality in Nigeria.

5.1 Recommendations

From the results obtained in the course of this study, the following policy recommendations are suggested:

Firstly, the government should play more roles in ensuring higher agricultural participation rate by providing loan support to the sector. This support will drive down the cost associated with this sector and encourage participation, investment and raise output. The government should also participate directly in agricultural production by expanding the services of the agricultural development programmes, setting up farm settlements and subsidizing agricultural inputs and implements.

Secondly, since the role of government is vital as the major driver of the economy through its monetary and fiscal policy actions, it can catalyze the economy to the desired state by either increase or decrease in spending, monetary policy rates regime, trade options and the stabilization of the exchange rate, promotion of free-market economic policies that will promote growth which ultimately will raise living standards.

Thirdly, the government should directly participate in the provision of social goods and services that will benefit a large proportion of the population. This can also come in form of subsidized or free education and healthcare and the provision of social safety nets.

Overall, a stable macroeconomic environment is required to achieve sustained growth that will create opportunities in the leading sectors and improve the level of income, reduce unemployment and poverty.

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APPENDIX

YEA R	POV	GDP	OPEN	UNP	EDN	LIT	IER	INF	HCE	APR
1991	77.3	596.04	37.021604 86	3.5620000 36	1.26	55.44675	44.1	23.0	0.62	49.933998 11
1992	77.1	909.80	38.227388 31	3.5620000 36	0.29	55.390619	45	48.8	0.15	50.172000 89
1993	78.325	1,259.07	33.719754 93	3.8259999 75	8.88	55.334488	46.725	61.3	3.87	49.685001 37
1994	79.55	1,762.81	23.059236 45	4.0159997 94	7.38	55.278357	48.45	76.8	2.09	49.027000 43
1995	80.775	2,895.20	39.528378 41	3.9470000 27	9.75	55.222226	50.175	51.6	3.32	49.727001 19
1996	82	3,779.13	40.257729 25	3.9509999 75	11.50	55.166095	51.9	14.3	3.02	49.627998 35
1997	81.7	4,111.64	51.461010 79	3.9739999 77	14.85	55.109965	50.214285	71	10.2	49.231998 44
1998	81.4	4,588.99	39.278607 47	3.9920001 03	13.59	55.053834	48.528571	43	11.9	48.217998 5
1999	81.1	5,307.36	34.457831 18	4.0089998 25	43.61	54.997703	46.842857	14	0.2	48.151000 98
2000	80.8	6,897.48	48.995599 47	3.9539999 96	57.96	54.941572	45.157142	86	14.5	48.436000 82
2001	80.5	8,134.14	49.680500 29	4.0289998 05	39.88	54.885441	43.471428	57	16.5	47.700000 76
2002	80.2	11,332.2 5	40.035168 59	4.1100001 34	80.53	54.829310	41.785714	29	12.2	48.331001 28
2003	79.9	13,301.5 6	49.334964 86	4.0630002 02	64.78	54.77318	40.1	23.8	33.27	47.726001 74
2004	79.516 7	17,321.3 0	31.895870 44	3.9800000 19	76.53	54.034076	40.583333	33	10.0	45.555000 31
2005	79.133 3	22,269.9 8	33.059460 07	3.8699998 86	82.80	53.294972	41.066666	67	11.6	44.911998 75
2006	78.75	28,662.4 7	42.566565 8	3.6659998 89	119.02	52.555868	41.55	8.5	62.25	43.716999 05
2007	78.366 7	32,995.3 8	39.336931 51	3.4389998 91	150.78	51.816764	42.033333	33	6.6	42.860000 61
2008	77.983 3	39,157.8 8	40.796835 35	3.4240000 25	163.98	51.07766	42.516666	67	15.1	42.215999 6
2009	77.6	44,285.5 6	36.058710 41	3.7569999 69	137.12	52.171495	43	13.9	90.20	41.067001 34
2010	77.333 3	54,612.2 6	43.320756 84	3.7699999 81	170.80	53.26533	42.555555	56	11.8	40.777999 88
2011	77.066 7	62,980.4 0	53.277958 33	3.6970000 27	335.80	54.359165	42.111111	11	10.3	40.185001 37
2012	76.8	71,713.9 4	44.532368 05	3.6930000 78	348.40	55.453	41.666666	67	12.0	39.319999 69
2013	76.533 3	80,092.5 6	31.048859 95	3.7030000 69	390.42	56.546835	41.222222	22	7.96	38.270999 91
2014	76.266 7	89,043.6 2	30.885193 72	4.4369997 98	311.12	57.64067	40.777777	78	7.98	37.698001 86
2015	76	94,144.9 6	21.446929 67	5.3130002 02	325.19	58.734505	40.333333	33	9.55	37.080001 83
2016	75.733 3	101,489. 49	20.722518 88	6.2369999 89	339.28	59.82834	39.888888	89	18.5	36.910999 3
2017	75.466 7	113,711. 63	26.347599	6.0130000 11	403.96	60.922175	39.444444	44	15.3	36.807998 66
2018	75.2	127,762. 55	33.001258 7	6.0260000 23	465.30	62.01601	39	0	296.4	36.616001 13

Source: CBN (2018) WD(2018)

Dependent Variable: POV
 Method: Least Squares
 Date: 07/08/20 Time: 18:20
 Sample: 1991 2018
 Included observations: 28

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	36.14435	17.73598	2.037912	0.0538
LOG(GDP)	1.322465	0.497275	2.659425	0.0143
OPEN	0.058914	0.028431	2.072226	0.0502
UNP	-1.102107	0.908458	-1.213163	0.2379
EDN	-0.025470	0.005638	-4.517254	0.0002
LIT	0.646071	0.319988	2.019048	0.0558
R-squared	0.788761	Mean dependent var		78.51429
Adjusted R-squared	0.740752	S.D. dependent var		2.048049
S.E. of regression	1.042793	Akaike info criterion		3.109093
Sum squared resid	23.92320	Schwarz criterion		3.394565
Log likelihood	-37.52730	Hannan-Quinn criter.		3.196364
F-statistic	16.42946	Durbin-Watson stat		1.244225
Prob(F-statistic)	0.000001			

Dependent Variable: IER
 Method: Least Squares
 Date: 07/08/20 Time: 18:33
 Sample: 1991 2018
 Included observations: 28

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	42.15401	37.11911	1.135642	0.2689
LOG(GDP)	-0.920404	1.216994	-0.756293	0.4579
INF	0.002738	0.039433	0.069445	0.9453
HCE	-0.001152	0.030958	-0.037222	0.9707
EDN	-0.001936	0.020042	-0.096601	0.9240
LIT	0.045484	0.323583	0.140564	0.8896
APR	0.183323	0.519547	0.352852	0.7277
R-squared	0.563889	Mean dependent var		43.57857
Adjusted R-squared	0.439286	S.D. dependent var		3.607551
S.E. of regression	2.701364	Akaike info criterion		5.037708
Sum squared resid	153.2447	Schwarz criterion		5.370759
Log likelihood	-63.52792	Hannan-Quinn criter.		5.139525
F-statistic	4.525485	Durbin-Watson stat		1.260857
Prob(F-statistic)	0.004293			

Date: 07/08/20 Time:
 18:30
 Sample: 1991 2018

	PVR	GDP	OPEN	UNP	EDN	LIT	IER	INF	HCE	APR
Mean	78.51429	37325.70	37.61984	4.143571	149.0983	55.36237	43.57857	19.12794	88.54795	44.28432
Median	78.34583	19795.64	38.75300	3.952500	81.66399	55.08190	42.31389	12.07481	48.14221	45.23350
Maximum	82.00000	127762.5	53.27796	6.237000	465.3011	62.01601	51.90000	76.75887	296.4428	50.17200
Minimum	75.20000	596.0447	20.72252	3.424000	0.291298	51.07766	39.00000	0.223606	0.150161	36.61600

Macroeconomic Policies On Poverty And Income Inequality In Nigeria: An Empirical Analysis

Std. Dev.	2.048049	39701.30	8.742835	0.772194	149.5976	2.545386	3.607551	17.95883	95.31485	4.950451
Skewness	0.090634	0.869791	0.146526	1.827368	0.744075	0.931846	0.854659	2.006396	0.816747	0.311918
Kurtosis	1.784127	2.416137	2.464921	5.059054	2.068345	3.819423	2.597182	6.023609	2.209216	1.520013
Jarque-Bera Probability	1.763073	3.928218	0.434220	20.52959	3.596334	4.835600	3.598031	29.45217	3.842585	3.009453
Sum	2198.400	1045119.	1053.356	116.0200	4174.751	1550.146	1220.200	535.5823	2479.343	1239.961
Sum Sq. Dev.	113.2516	4.26E+10	2063.803	16.09964	604244.8	174.9327	351.3894	8708.028	245292.9	661.6880
Observations	28	28	28	28	28	28	28	28	28	28

ENOMA OJO. "Macroeconomic Policies On Poverty And Income Inequality In Nigeria: An Empirical Analysis." *IOSR Journal of Humanities and Social Science (IOSR-JHSS)*, 25(8), 2020, pp. 01-18.