Rising Poverty Incidence And Macroeconomic Policy In Nigeria: An Empirical Investigation

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Abstract

Most African countries including Nigeria have strived to reduce poverty because of the impediments it lashes on economic growth. Nigeria has joined the rest of the world in reducing poverty evidently by adopting various policies and strategies to minimally reduce & maximally end poverty in such a way that it will boost economic growth. This research uses statistical and econometric tools for the analysis. A priori expectation and OLS regression model were adopted. The proxies used for poverty reduction are Foreign Direct Investment, Foreign Aid, Government expenditure and Tertiary School Enrolment, the core variable is the Real GDP. Attempts were made to interrogate whether poverty reduction is a good instrument for measuring economic growth. The results show that there is a positive relationship between Foreign Direct Investment, Government Expenditure, and Tertiary School Enrolment to economic growth, while there is a negative relationship between foreign aid and economic growth. It was recommended that nations need come together and address some critical issues contributing to poverty that affects economic growth such as inequitable allocation of resources, high birth rate and revenue sharing formulae, etc.

Keywords: Poverty, Poverty Reduction, Economic policy, Sustainability, Nigeria.

Introduction

Background of the study

Poverty as a phenomenon is being perceived by different people from different aspects. Most people take poverty as deprivation and deficiency, while some others see it as inefficiency. But poverty is a phenomenon that has economic, environmental, philosophical, historical, social, psychological, international, regional and cultural dimension, which mean that poverty's definition deepens look at it. As there are variations in the living standard of people around the world, the same way the economic growth rates vary from one country to another. Some countries are poor; some are fairly and averagely well off while others are rich. The level of poverty in Nigeria since the Implementation of the structural adjustment programme (SAP) in the 1980s has tremendously increased. But the key challenge facing Nigeria and other developing countries is how these

countries can sustainably feed their people. Although Nigeria is also blessed with an abundance of natural resources such as crude oil and mineral resources, still it retains a high level of poverty with 80% living below $2 daily (African development bank (AFDB 2018).

Nigeria is a resource-rich nation with an abundance of water resources, arable land, land for construction, and other endowments, as well as a huge population and other resources.Nigeria is the most populous nation by population in Africa, the seventh most populated nation globally, and the eighth most populous crude oil exporter in the world, with a projected population of over 200 million in 2020 (Population Reference Bureau (PRB), 2017; Worldometer, 2020). Despite having abundant resources, Nigeria currently ranks low on the human development index, coming in at 158th place out of 189 countries, with 39.1% of its population living below the US$1.90 per day poverty line, far behind other sub-Saharan African nations like Rwanda (60%) Zambia (64.4%), and Mozambique (68.7%). (UNDP, 2018; UNDP, 2016).

In the Brookings Institution's 2018 annual study, Nigeria was ranked above India as one of the world's poorest nations.The degree of poverty in Nigeria was extremely low when the country gained independence (1960).But decades after winning independence, Nigeria went from having a low rate of poverty to one of the nations with the worst rates of poverty today.Despite the initiatives taken by successive administrations to eradicate poverty since 1980, Nigeria failed not reach the MDGs poverty targets by 2015.No matter how hard succeeding military and democratic regimes tried, they were unable to eradicate poverty. Accordingly, poverty is a significant barrier to Nigeria's socioeconomic growth and has persisted despite various measures (Danaan, 2018).

Poverty as a debated issue in Nigeria knows no bounds as it is visible in all aspects and segments of the society,poverty is multidimensional. Poverty is not just limited to the rural areas it is also evident in the urban areas and slums in the country.Poverty is relative and also physical. It is physical because one can note its effects on the people that are affected and it is relative because what is regarded as stark poverty in some nations such as the United States of America (USA) and the United Kingdom (UK) can be seen in other nations in Africa and Asia as luxury. The poor are those that have limited and insufficient food, poor clothing, resides in overcrowded and dirty shelter both internally and externally (Galbraith 1995), cannot afford medical care and recreation, cannot meet family and community obligations and other necessities of life. Poverty is also extended in that it covers “capability deprivation” and the denial of much substantive freedom to live a quality life a person values and places a person in a more economically vulnerable position. This limits the freedom the poor enjoys and intensifies their deprivation (Alkire, 2007).

When we come to the Nigerian context, there is no precise definition or explanation needed for an individual to know what poverty is, as many people cannot afford decent food, medical care, recreation, decent shelter and clothing, meet up with family obligations etc, little wonder poverty is regarded as a form of oppression (UNDP 2011). Poverty means more than being impoverished and more than just lacking financial means, it is an overall condition of inadequacy, lack and scarcity, deficiency of economic, political and social resources. These are a broader perspective of

poverty that reflects its true dimensions. Someone can be said to be in poverty if the person's income, cultural and social standards are so inadequate as to exclude them from having a standard of living that is regarded as acceptable by society generally. Poverty doesn't respect a creed, race or educated and uneducated, healthy or wealthy, it affects all when it strikes. Nigeria is a country that enjoys the bountiful environment of nature and yet cannot appropriate the natural and economic resources to its advantage. It is greatly ironic that in the last two decades, Nigeria has received over $200 billion in oil and gas revenue (OPEC, 2014), and at the same time, the population of the critically poor has been doubled. Nigeria has been described as a paradox by the World Bank (1996) in the sense that the poverty level in Nigeria contradicts the country's immense wealth. Nigeria is one of the poorest countries at the threshold of the 21st century whereas it was among the richest 50 in the early 1970s.

It has been estimated that more than 80% of all the poor live in rural areas of which 92% of them live in absolute poverty (UNICEF 2014-2017), and these poor people in the rural areas are mostly in our abandoned agriculture which is usually small scale in nature.

Many administrations have tried eradicating poverty in the wrong way, most administrations think that enhancing the growth and development of the cities would subsequently promote the development of the rural communities by trickled down effect but these rather improve people in the cities than those in the villages. The villages became disadvantaged, isolated, and dull as the youth and able-bodied men left the village to escape the rural drudgery and also search for white-collar jobs.

Nigeria has in its way tried to eradicate poverty through many poverty alleviation programmes which were geared toward the reduction of poverty in the country. The poverty alleviation and development plan (PADP) started in the year 1994, the structural adjustment programme (SAP) of 1986, the national accelerated food production project, the poverty alleviation programme of early 2000 which looked at employment and crime wave among the youths, the operation feed the nation (OFN) of 1976, Peoples bank of Nigeria(PBN) of 1983, Directorate for food, roads and rural infrastructure(1985-1993), National Directorate of employment (NDE) of 1987, USAID of 1975, Family economic advancement programme (FEAP) of 1993, and the most recent among these poverty alleviation programmes such as National poverty eradication programme(NAPEP) of 1999, Youth empowerment scheme (YES), Rural infrastructure development scheme (RIDS), Social welfare service scheme(SOWESS) and the N-POWER programme initiated by the present administration. But so far all these programmes have failed to obtain their objective which is a reduction of poverty.

The Federal and State government have recognized that for sustainable growth and development, the financial empowerment of the rural areas is vital, being the repository of the predominantly poor in society and in particular the SMEs. If this growth strategy is adopted and the latent entrepreneurial capabilities of this large segment of the people are sufficiently stimulated and sustained, then positive multipliers will be felt throughout the economy. To give effect to these

aspirations, various policies have been instituted over time by the Federal Government to improve rural enterprise production capabilities (Thankgod, 2016) It is therefore imperative at this point to critically evaluate not just the principles of entrepreneurship but the practice and its crucial role in fostering economic growth and development in a developing economy like Nigeria. Nigeria's GDP growth rate of between 6 – 8 per cent in the last ten years shows the country is one of the fastest-growing economies in the world (FBS. 2014). The implication is that any good business established is capable of generating unusual and above-average returns. It is one of the few countries with the highest returns on investment anywhere in the world's money market, capital market, mutual funds, real estate and property, entrepreneurship, etc (Popoola, 2014).Concerns about these problems as well as efforts made to eradicate or at least reduce it cannot be said to be new. While major reductions in poverty levels have been made in developed countries, developing countries, Nigeria inclusive, have been battling with poverty, from one poverty alleviation programme to another eradication programme, but all to no avail. The concern over increasing poverty levels in Nigeria and the need for its eradication as a means of improving the standard of living of the people has led to the conceptualization and implementation of various targeted or non-targeted poverty eradication and alleviation programmes. Both the Nigerian government and donor agencies have been active in efforts in analyzing and finding solutions to the increase in poverty level.

Recently, Federal Government embarked on a poverty reduction programme specifically the N-POWER programme in the year 2015 which took off in 2016. It was aimed at eradicating absolute poverty. To implement these programmes, the government emphasized complementation, collaboration and coordination between the various tiers of government on the one hand and between governments, Donors/Agencies, non-governmental organizations and local communities on the other. Despite all the laudable efforts at addressing poverty, the problem persists in Nigeria. Revenue allocation in a federal community like Nigeria may be described as an attempt by the central government to reduce the inequalities among its different units, concerning the financial resources available in the country.

Within the economy, there are several possible inequalities such as population, size, wealth, level of development etc. All these factors should be put into consideration to ensure rational allocation of revenue resources not only to the various unit of the economy but also to the various sectors of the economy which will lead the economy to the attainment of economic growth and development which are the most indispensable elements that should be attained in any successful economy. The need for revenue allocation arises mainly because of such inequalities in the financial resources available to the relative rein units of government as well as the relatively poor units. In Nigeria, some states are far better than some other states in terms of development, therefore, in allocating revenue resources, the authority should put in place certain persuasions which will lead to equitable allocation of funds. Equitable Allocation of Revenue is the allocation given to air the economy and to reduce inequalities among them, as regards the financial resources available in the country.

The factors that should be considered to ensure rational allocation of revenue are population, size, wealth and level of development. The allocation of revenue based on these factors above will help the economy to attain economic growth and development, which is the most important thing in any successful economy. The need for allocation of revenue arises because of such inequalities. When revenue resources are equitably distributed to various sectors of the economy, some benefits could be achieved. Such benefits are enhancement of the standard of living, development, employment opportunities and poverty alleviation.

The problem of poverty in Nigeria is not to be entirely blamed on the lack of sufficient resources but also on the allocation, distribution and management of these resources that are available for use. Given the excruciating effects of poverty on human and economic development and its global dimension, poverty reduction remains a focal point of development programmes.

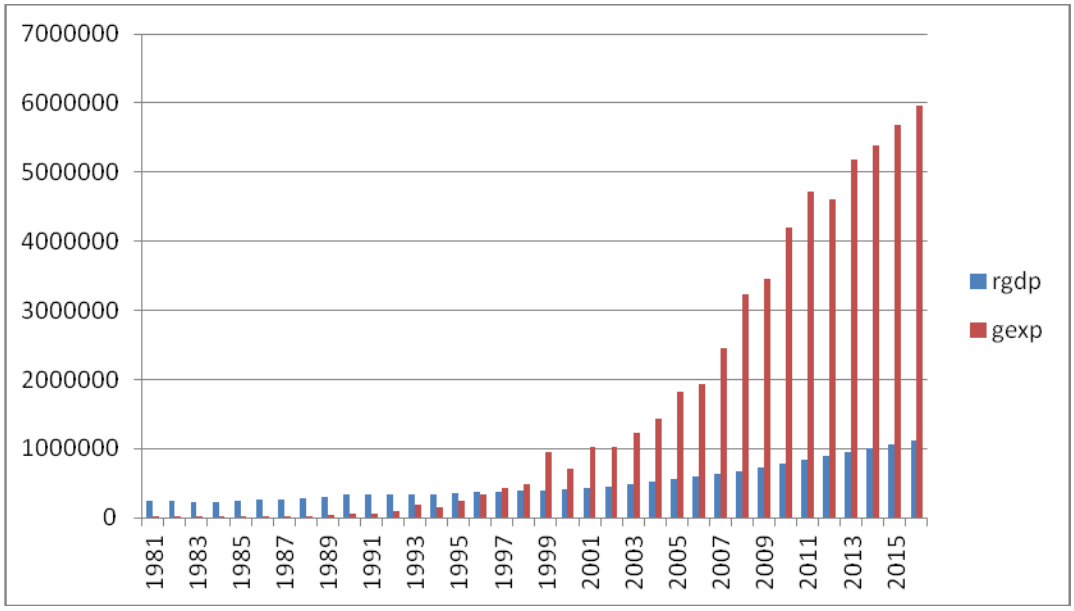
The issue becomes alarming because of the high level of poverty which hinders economic growth and development in Nigeria. Nigeria is one of the countries in Africa in which the number of poor populace is increasing on a daily and yearly basis. It should be noted that World Bank (2017), estimated that 70% of Nigerian lives on less than 2 dollars ($2) per day.

The issues surrounding the paradox of rising poverty amidst high economic growth in Nigeria are so alarming. It argues that the reasons for this absurdity include jobless growth, non-pro-poor growth, and failure of poverty alleviation initiatives to address structural transformation required for sustainable growth, employment generation, and bridging the income gap within the economy.

Shreds of evidence show that the number of those living in poverty has worsened over the last three and half decades (35 years). To the Nigerian demographic survey, Relatively, Poverty has increased from 28.1% in 1980 to 46.3% in 1985, it fell to 42.7% in 1992 and rose to a peak of 65.6% in 1996 before dropping to 54.4% in 2004 and increased to 60.9% in 2010 (UN 2011).

According to the Nigerian demographic survey, it is also observed that despite the decline in the proportion of the population experiencing poverty between 1996 and 2004, in absolute terms, the population in poverty rose from 67 to 87million. More insight into the challenge of poverty in Nigeria is obtained by considering the dimension of poverty. Urban poverty rose from 17.2 per cent in 1980 to 58.2 per cent in 1996 but declined obviously to 43.2 per cent in 2004. Rural poverty rose from 28.3 per cent in 1980 to 69.3 per cent in 1996. The rural poverty rate also decline but less remarkably to 63% in 2004 (Chukwu. 2010). At regional levels, the data suggested that the poverty rate from the year 1980 to 2004 increased and the Northern part of the country has more households in poverty than the southern part. Also, a study carried out by the United States common database (2012) shows that the growth rate for Nigeria was 3.1 per cent in 1980 and it fell to 2.5 per cent in 1985 and slightly increased in 1990 by 2.6 per cent. It dropped to 2.1 per cent in 2005 and has continued to fluctuate up till 2019 and 2020.

Fig1.1



CBN STATISTICAL BULLETIN (1981-2016 time series)

The rising inflation rate and a continuous increase in the price level have encouraged poverty since it reduces the real value of what an individual's income can obtain and purchase, thereby reducing productivity and suppressing economic growth.

Although a monetary measure is a simple tool for measuring poverty, Studies have shown that these measures are deficient (Revallion 1996). Ravallion argues that poverty is multi-faceted; therefore multi indicators are necessary including measures of real expenditure per adult and access to non-market goods like health and education. Hence for effective poverty measurement, there is a need to go beyond money metric measures. It is necessary to employ multi-dimensional approaches in which expenditure on market goods is placed and indicators of intrahousehold distribution. These will help us to understand the causes of poverty more so that better policies that can fight poverty can be formulated.

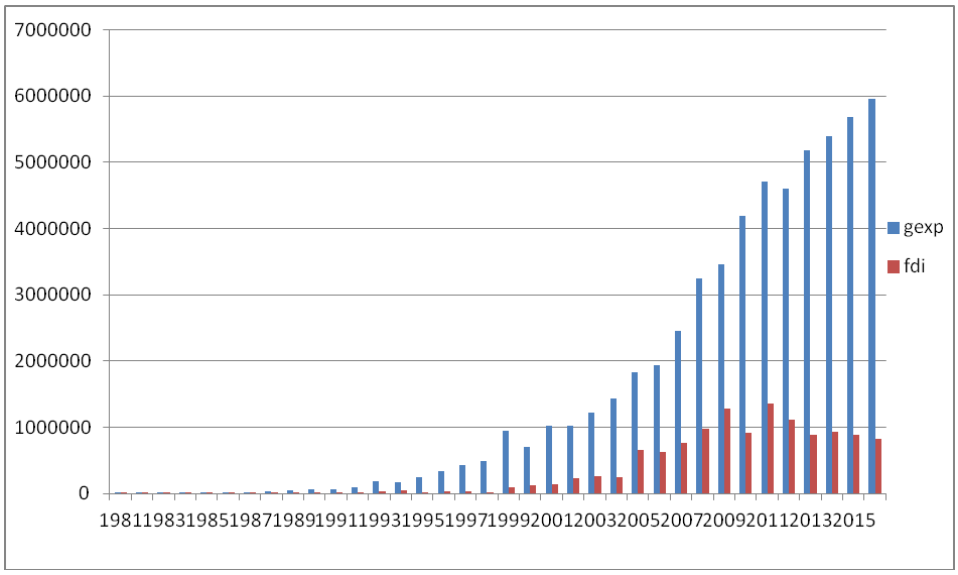
Poverty is being caused today in Nigeria, both by microeconomic, macroeconomic and unforeseen reasons. The major reasons to be counted for such misfortunes are unemployment and underemployment of resources which have become a permanent feature in Nigeria. The rising inflation rate and a continuous increase in the price level have encouraged poverty since it reduces the real value of what an individual's income can obtain and purchase, thereby reducing productivity and suppressing economic growth.

Foreign Direct Investment is widely thought to bring with it into the host country a bundle of productive assets including long term foreign capital, entrepreneurship, technological skills, innovative capacity, managerial, organizational, export marketing know-how and transfer pricing.

The distinctive feature of Foreign Direct Investment is that it involves not only a transfer of resources but also the acquisition of control, i.e. the subsidiary does not simply have a financial obligation to the parent company, it is part of the same organizational structure (Krugman and Obstfeld, 2000).

Olusanya (2013) demonstrates that technical changes and technological learning are the significant components of Foreign Direct Investment which represent important determinants of economic growth. Furthermore, it is relevant to add that technology is generated by Research and Development (R&D), most of which are conducted in industrialized countries making technology transfer very important for the economic prosperity of countries with weak Research and Development (R&D) and also innovative capacities. Historically, low rates of FDI inflows to the region and Nigeria, in particular, are explained by hostile policies, an unstable political environment characterized by civil wars and armed conflicts, lack of effective regional integration efforts, poor and deteriorating infrastructure, burdensome regulations or lack of institutional capacity to implement FDI to establish confidence.

Fig 1.2.



Source:CBN Statisical Bulletin 2016

Review of Extant Literature

The impact of education in reducing poverty and its macroeconomic and social drivers from the developing economy was researched by Liu, Li, Zhang, Ngo, and Igbal (2021).The Engle-Granger two-step co-integration technique was used to derive the economic long-term and short-term

dynamic properties of education in reducing poverty rate in this age. The model was calculated using time series data from 1980 to 2018.This model is designed to test the idea that education may advance the nation's economic development.Their research revealed that education greatly lowers the amount of poverty, while higher education appears to be a more effective instrument for doing so. While foreign sectors, particularly the oil industry, symbolize exchanges with the rest of the world, the public and monetary sectors integrate institutional elements with pertinent policy measures.The industry-wide model, which is used to assess the government's numerous alternatives for boosting economic productivity and lead to sustained acceleration of growth and poverty reduction in South Asian economies, is influenced by a number of policy scenarios.

Using data from 1984 to 2018, Dada and Fanowopo (2020) used autoregressive distributed lag to evaluate how institutions affected the link between economic growth and poverty reduction in Nigeria.The study's findings suggested that both short- and long-term poverty reduction are positively impacted by economic growth and institutions (as measured by political stability and the ability to manage corruption).As a result, the study concluded that strong institutions and economic growth are both important elements that can be used to lower poverty in Nigeria.

Fosu (2017) used data from early 1990s developing countries for both country-specific and regional developing countries to study the effect of income disparity in the transfer of economic expansion to poverty reduction.They used poverty headcount ratios of 1.25 and 2.50 per day.According to the study, the average income growth is the main cause of poverty's rise and fall.Evidence also indicated that there is a belief that more progress can be made when there is an equitable distribution of income in states where growth has been the main driver of poverty reduction. According to Ucha (2010), the main causes of poverty in Nigeria are unemployment among graduates, a lack of economic diversification, corruption in public offices, income inequality, poor educational standards, and inactivity.They support the idea that, despite poverty's multifaceted existence in the nation, its multiple root causes are interconnected and mutually supportive.For instance, because unemployment, poor education, and poverty are all interrelated, those who lack the necessary amount and quality of education are less likely to get excellent jobs, which results in no or low income and sets off a vicious cycle.According to the report, all correlated issues must be resolved at once in order to combat poverty and advance.

Strategies aimed at achieving deeper outreach to the very poor is a growing concern, as evidenced by the United Nation 17's Sustainable Development Goals (SDGs) which envision extreme poverty to be halved by 2020. The incidence of poverty in Nigeria in recent times is rather pathetic. Since poverty remains a development issue; it has continued to capture the attention of both the national government and international development agencies for several decades. This conception of poverty has been used in the development of the United Nations development programme’s human development index (HDI) and human poverty index (HPI). The poverty level in Nigeria contradicts the country’s immense wealth of human, agricultural, petroleum, gas and solid minerals.

Empirical literature

Rodrik (2011) in his work titled "The globalization paradox" reasoned that globalization was supposed to address some of the causes of poverty but instead, the last two centuries of globalization have witnessed massive economic divergence on a global scale. In Rodrik's words "poor people are poor because their labour enables them to produce very little to adequately feed and house themselves, let alone provide for other needs such as health and education. The low productivity in turn has diverse and multiple causes which occur as a result of lack of credit, which prevents producers from making the investments that would increase their output and hence incomes. Furthermore, a lack of skills, knowledge, job opportunities and small market size depresses the profitability of acquiring new equipment and technologies, or due to exploitative elites, especially in cahoots with the government which block any improvement in economic conditions that would threaten their power.

Using the generalized method of moments for 15 West African nations, Osabohien et al. (2019) looked at Nigeria's agricultural development in relation to employment creation and poverty reduction.The panel data's findings for the years 2000 to 2016 demonstrated that poverty in the chosen nations is negatively impacted by the value added to agriculture.

Tatum (2014) suggests that higher levels of per capita income do not guarantee lower levels of poverty. But that the understanding of the content of the poverty problem in less developed countries must centre on the analysis of the size of distribution of income. To him, the magnitude of absolute poverty is based on the combination of human factors via; low per capita income and highly skewed income distribution. Consequently, the problem of poverty and income inequality is not just the one of economic growth and the political and institutional arrangement according to which rising incomes are distributed among a large segment of the population.

In Nigeria from 1980 to 2010, Ogbeide and Agu (2015) conducted research to determine whether poverty and inequality were causally related.Data from the National Bureau of Statistics, the World Development Indicators of the World Bank, and the Central Bank of Nigeria were used in the analysis, which used the Granger causality technique.The study's findings indicated that there is no causal relationship between poverty and national unemployment but that there is a response causality effect between poverty and inequality. As a result, while there is an indirect association between both due to unemployment and life expectancy increasing inequality and increasing poverty, there is a direct relationship between poverty and inequality.Therefore, the report advises that one of the main strategies for addressing poverty and inequality in Nigeria should be employment.

Unlike in other countries, Ogbu (2018) examines the conceptual and methodological issues in poverty measurements in Nigeria. According to him, the World Bank's year 1990 one dollar a day measure of the poverty line triggered most of the current controversy, it is simple and provides quick comparability across countries, embedded in its simplicity though is the one-dimensional

concern being income poverty, ignoring all other aspects of poverty. This one dollar a day measurement was solely based on the "total cost of all essential resources that an average human adult consumes in one year". And it is based on the purchasing power parity of a given year. In 2008, the World Bank moved it to 1.25 dollars a day based on the purchasing power parity of 2005, and in October 2015, it was once again moved to 1.90 dollars (684 naira). Using the income poverty measure for instance, for a household of 6 members, it would amount to daily consumption of 4,104 Naira with a total of expected expenses of 127,224 naira, and the Nigerian minimum wage is pegged at 18,000 Naira per month. The daily minimum according to this threshold is 23% of the Nigeria's minimum wage. If nobody else is working in that household, the minimum wage should last for an estimated 4.4 days, while the global poverty line requires 127,224 naira per month for a household of 6 members. This is far from the Nigerian reality. A dollar a day measurement fails to account for rents as a major essential component of expenses, and we don't account for the owner or occupier of most of our rural dwellers, even if we discount the quality of the buildings. Since poverty means more than income, the country's poor will be more than the actual estimates.

World Bank (2010), reports that poverty is overwhelmingly a rural problem. The study also shows that the main determinants of poverty include the location (rural and urban), educational levels, age composition, the heads and leaders of the household, family size, the extent of income inequality, and inflation rate among others. Eze, (2010) further added that if different levels of government can improve the productivity of farmers, their technological methods, their market access, their insurance, and remove their impediments to their output growth, poverty would be reduced. (Moyo, 2009) Rather than help, the scramble for donor agencies created a dependency that became magnified into chronic aid dependency. He further explained that foreign aid is used to subsidize the opulent lifestyles of aid administrators and how only a small portion of the fund is ever translated into direct assistance. He attributed this to bureaucratic inefficiency, misguided policies, large executive salaries, political corruption and self-perpetuating or overhead of the administrating agencies.

In response to that income is not sufficient to measure poverty, the United Nations development programme (UNDP) came up with the Human development index (HDI) which measures the quality of life through the aspects such as a healthy life span, and knowledge and a decent standard of living. The HDI was a better measure but not completely. Then in 2010, the human development report of the UNDP included MPI as one of the three new indices to complement the HDI. The Poverty-index income inequality (Gini-coefficient) should be used to eliminate some of the limitations, which are inherited in the use of one of the theories and to provide more fruitful insights in formulating policies for poverty reduction

In their study using panel data analysis to see if financial inclusion reduces poverty and income inequality in developing countries, Omar and Inaba (2020) discovered that per capita real GDP and the ratio of internet users positively influence financial inclusion in developing countries, while age dependency ratio, inflation, and income inequality have a negative impact. Their findings suggest that economies with more financial inclusion reduce poverty and income

inequality in developing countries significantly. In addition, for poverty, the interaction factors of financial inclusion with GDP growth and secondary school enrollment ratio are statistically significant, whereas, for income inequality, the interaction terms of financial inclusion with GDP growth and rule of law are statistically significant. This shows that financial inclusion's success in decreasing poverty and income inequality is dependent not only on itself but also on other factors.

Adelowokan, Maku, Babasanya, and Adesoye (2019) investigate the relationship between unemployment, poverty, and economic growth in Nigeria from 1985 to 2015. To establish the relationships between the variables, they used the AugmentDickey–Fuller test, Johansen cointegration, Granger causality, and Error CorrectionModel.The unit root test found that the trend of the variables over time indicates that integration at the level has failed. At first difference, however, they were discovered to be immovable. There is no causation between unemployment, poverty, and economic growth, according to the Granger causality conclusion. The cointegration finding demonstrated that unemployment, poverty, and economic growth in Nigeria have no long-term link. Furthermore, despite unemployment-induced poverty having a positive relationship with growth, it is also a significant determinant of growth in the short run; nevertheless, unemployment has a negative association with growth and is a large determinant of growth in the long run. It suggests that growth will occur in the country even if there are poor people in absolute terms. Even if the population grows, the economy will continue to grow. This is also true in the short run, indicating that the economy has risen even though the number of poor people has increased over time. As a result, even if the value of gross domestic products increases, it is critical to recognize that a high incidence of unemployment will translate into a high rate of poverty. This will lead to merely economic growth rather than significant economic
Progress

Gap in Literature

The current study focuses on the underlying persistence of poverty and how to develop informed macroeconomic policies to alleviate the widespread poverty in Nigeria. This is because previous studies, such as(Dada and Fanowopo 2020, Danaan 2018, Fosu 2017, Osabohien etal 2019, and Ogbeider & Agu 2015), which examined the prevalence of poverty in Nigeria and some policy interventions, failed to empirically determine the effect of poverty and its consequences to achieving economic growth.Thus, the vicious cycle of poverty theory was adopted unlike the previous studies.

Methodology

The Vicious circle of poverty theory is adopted for this work. This theory is based on the idea that poverty hurts economic growth, with the main reason being that low capital leads to low total productivity, which leads to low income, which leads to low aggregate savings, which leads to low investment, which leads back to capital deficiency, which is the primary cause of poverty (Kebede, 2014). Poverty reduction, on the other hand, will result in an increase in investment by investors, which will result in maximum productivity for the economy.

Model Specification

The models will be specified with the use of a priori economic theories and available information relating to the impact of financial deepening on output volatility.

Functional form of Model

The functional form of the model is specified thus:

RGDP = *f* (FDI, FAID, GOVTEXP, TSE)…… (.1)

Where:

RGDP = Real Gross Domestic Product

FDI = Foreign Direct Investment

FAID = Foreign Aid

GOVT.EXP = Government Expenditure

TSE = Tertiary School Enrolment

Mathematical Specification of the Model

The mathematical specification of the model is given as follows:

$RGDP = B_0 + \beta_1 FDI + \beta_2 FAID + \beta_3 GOVTEXP + \beta_4 TSE$……..…. (.2)

B_0, β_1, β_2, and β_4 are parameters of the model.

Econometric Specification of the Model

Equations (1) and (2) above show an exact or deterministic nature of the model. To allow for the inexact relationship among the variables as in the case of most economic variables, we, therefore, have to include the stochastic error term U_1. Thus we can specify the econometric model as follows:

$RGDP = B_0 + \beta_1 FDI + \beta_2 FAID + \beta_3 GOVTEXP + \beta_4 TSE + Ut$…….. (.3)

Where B_0 = the intercept term of the regression.

U_1 = Stochastic/error term.

1 = time-series data

β_1, β_2, β_3, and β_4 are the partial slope coefficients of their respective explanatory variables.

Estimation Procedure

Unit Root Test

The first essential step to be carried out is to examine if our data is stationary. It is imperative to look at patterns and trends in the data and test whether the time series variables are time-invariant that is, constant variance., constant mean and by extension constant covariance. The stationarity of variables means that the mean and standard deviation do not change with time (Madueme, 2010).

The Philip Perron test will show the order of integration of the individual series considered. It has a null hypothesis of a unit root.

H_{01} Y_1 = (presence of unit root/noon stationary)

H_1 $Y_1 < 0$ (Stationarity)

Decision Rule: Reject the null hypothesis if $|T_{cal}|$, do not reject if otherwise. If the null hypothesis is rejected, it proves that the series is stationary or integration of order one that is 1(0).

Co-Integration Test

This shows if there is a long term relationship between two variables. Co-integration also helps in avoiding spurious regression situations (Granger, 1986). The Johansen co-integration is applied in the work to check for integration between variables. The T statistics are compared to the 0.05 critical values. The null hypothesis is that there is no co-integration.

Presentation And Analysis Of Regression Result

In this section, I examined and showed the relationship between poverty reduction and economic growth in Nigeria. I revealed the outcome of the regression of the model. The objective and hypothesis identified earlier in chapter one shall also be evaluated based on the findings in this chapter and the analytical framework set in chapter three. The analysis of the result will include referring the variables of estimate in the model to various statistical, economic and econometric tests.

Pre Estimation Test Results:

Stationarity Test

The unit root test used is the Augmented Dickey-Fuller test.

Test of Hypothesis:

Null Hypothesis (H_0): The variables are non-stationary

Alternative hypothesis (H1): The variables are stationary

Level of Significance (α) = 5%

Decision Rule: Reject H_0 if $|tau_{cal}| > |tau_{tab}$

Augmented Dickey-Fuller Test Result

Table I.1

VARIABLES	ORDER OF INTEGRATION	TAU STATISTIC	5% CRITICAL VALUE
FDI	**I(0)**	-3.766682	-2.948404
FAID	**I(1)**	-4.518269	-2.951125
GOVTEXP	**I(2)**	-3.759749	-2.954021
TSE	**I(1)**	-4.200486	-2.951125
RGDP	**I(1)**	-4.015801	-2.951125

From the table, we can see that the independent variable Foreign Direct Investment (FDI) is stationary at level form, while Foreign Aid (FAID), and Tertiary School Enrolment (TSE) are stationary at the first difference I(1). Meanwhile, Government Expenditure is stationary at the second difference I(2). Also, the dependent variable Real GDP is stationary at the first difference I(1).

Co-Integration Test

The Johansen co-integration test is applied in the work to check for integration between variables.

H_0: Variables are co-integrated.

H_1: Variables are not co-integrated.

Decision Rule: Reject H_0 if the trace statistic is greater than 5% critical value and do not reject if otherwise.

Table 1.2: Co-Integration Test Result

Conclusion: Since the trace statistic is greater than the critical value at a 5% level of significance, we, therefore, reject H_0 and conclude that the variables are cointegrated

Decision Rule: Reject H_0 if the trace statistic is greater than the 5% critical value and do not reject if

Hypothesis	**Eigen value**	**Trace Statistic**	**5% critical value**	**P- value**	**Decision**
H_0	0.537332	69.04778	59.81889	0.2658	**Reject H_0**

1.3 Presentation And Interpretation Of Ordinary Least Square (Ols) Regression Results

Here we present the OLS regression result of the model that was estimated in equation 3.1.

Table 1.3.1 Ols Regression Result For The Model

Dependent variable= Real GDP

Variables	Coefficient	Standard error	t- statistic	p- value
Constant	12.68988	0.253230	50.11200	0.0000
FDI	0.057982	0.016192	3.580891	0.0012
FAID	-0.019986	0.013853	-1.442689	0.1591
GOVTEXP	0.007280	0.007711	0.944130	0.3524
TSE	0.064808	0.003433	18.87848	0.0000

R^2=0.980879 **F-stat=**397.5715 **DW=** 1.004300

In the table above, all the explanatory variables except foreign aid have a positive effect on real GDP. The model also has a high R^2 which implies that the model fits the data. Also, the F-statistic is significant.

4.3 Evaluation of Results Based on Economic (A Priori) Criteria

This section seeks to evaluate the regression results based on a priori expectations. This evaluation is aimed at ascertaining if the time-series data of the variables used conform to the expectations of established economic theories.

The Intercept

The value of the intercept is 12.68988 which shows that Nigeria will experience a 12.68988 unit increase in real GDP when all other variables are held constant.

Foreign Direct Investment

The coefficient of Foreign Direct Investment (FDI) in the regression result is 0.057982; this shows its positive relationship with inflation. This value means that holding other variables constant, a unit increase in FDI will on average increase real GDP by about 0.057982 units. This conforms to a prori expectation.

Foreign Aid

The coefficient of Foreign Aid is -0.019986, which shows a negative relationship between real GDP and foreign aid. This shows that holding all other variables constant, a unit increase in Foreign Aid in Nigeria will on average reduce GDP by about -0.019986 units. Though this did not conform to a prori expectation it goes in line with the findings of Abegaz(2005), AFDB(2005) which indicates that foreign aid has no significant impact on per capita economic growth in African developing countries like Nigeria except the countries with sound stabilization, trade policies and planning.

Government Expenditure (GOVTEXP)

The coefficient of Government Expenditure (GOVTEXP) is 0.007280, which shows a positive relationship between real GDP and Government Expenditure. This shows that holding all other variables constant, a unit increase in Government Expenditure in Nigeria will on average increase real GDP by about 0.007280 units. This goes in line with the findings of Jelilov and Muhammed (2016) which indicated that an increase in government expenditure (especially on capital expenditure and precautionary provisions) has a significant impact on economic growth.

Tertiary School Enrolment

The coefficient of Tertiary School Enrolment (TSE) is 0.064808, which shows a positive relationship between real GDP and Tertiary School Enrolment. This shows that holding all other variables constant, a unit increase in Tertiary School Enrolment in Nigeria will on the average increase real GDP by about 0.064808 units. This goes in line with the works of Okuneye, and Adelowokan(2014) showing that tertiary enrolment has a positive relationship with economic growth.

TABLE 1.3.2 SUMMARY OF THE EVALUATION BASED ON A PROARI EXPECTATION

VARIABLE	EXPECTED SIGN	OBTAINED SIGN	REMARK
FDI	+	+	CONFORM
FAID	+	–	DID NOT CONFORM
GOVTEXP	+	+	CONFORM
TSE	+	+	CONFORM

Source: Duce (2003), Lancaster, (2006), Akrani (2011) and UNESCO Institute for Statistics, (2011).

Evaluation Based On Statistical Criteria (First-Order Test)

These tests are conducted on the statistical parameters using the R-squared and Adjusted R-squared, the student's t-test and the F-test to check the statistical reliability of the estimated parameters and the robustness of the regression results.

The Coefficient Of Determination (R^2 And The Adjusted R^2)

The coefficient of determination (R^2 and the adjusted R^2) is a test statistic used to measure the goodness of fit. Its repressors present the proportion of the total variation on REAL GDP that is being explained by Foreign Aid, Foreign Direct Investment, Government Expenditure and Tertiary School Enrolment. From the regression result, the R^2 for the model is 0.980879 or 98% and the R^2 –adjusted is 0.978412 or 97%. This implies that 98% of the total variation in real GDP in Nigeria within the period under consideration is a result of the joint variation of Foreign Aid, Foreign Direct Investment, Government Expenditure and Tertiary School Enrolment. Also, since the Durbin – Watson statistics 1.004300 is greater than the R^2 (0.980879), it further shows that the entire regression model is statistically significant. This signifies that the model is a good fit.

The T-Test

This study adopts 5% as its level of significance. The t-statistic helps us to determine the individual significance of the parameters by comparing the values of the calculated t-statistic and critical values at a given level of significance. The hypothesis is stated below

H_0: $\beta_1 = 0$ (there is no significant relationship between the explanatory variable and real gross domestic product).

At $\alpha = 5\%$ (that is at 5% level of significance) with n-k degree of freedom.

Where:

n = number of observations.

k = number of parameters.

The critical value is obtained from the student's t-distribution table at ($\alpha/2$) level of significance and n-k degrees of freedom.

TABLE 1.3 3

Decision Rule

Reject H_0 if $/t_{cal}/ > t_{\alpha/2}$ (n-k) d.f, do not reject if otherwise.

VARIABLE	**t-STATISTIC**	**CRITICAL VALUE**	**CONCLUSION**
FDI	3.580891	2.042	Statistically Insignificant
FAID	-1.442689	2.042	Statistically Significant
GOVTEXP	0.944130	2.042	Statistically Significant
TSE	18.87848	2.042	Statistically Insignificant

Source: Duce (2003), Lancaster, (2006), Akrani (2011) and UNESCO Institute for Statistics, (2011)

The F-Test`

In this study, we shall use the ANOVA (Analysis of Variance) to present the F-statistic. The F-Value provides a test of the null hypothesis that the true coefficients are simultaneously zero. The working hypothesis is as follows:

H_0: $\beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = 0$ (the overall model is insignificant)

H_1: $\beta_1 \neq \beta_2 \neq \beta_3 \neq \beta_4 \neq \beta_5 = 0$ (the overall model is insignificant)

At α=5% with k-1 (numerator) and n-k (denominator) degree of freedom.

Where;

n=number of observation.

k=number of parameters

Decision Rule

Reject H_0 if F* (F_{tcal}) $>$ F (F_{tab}) (k-1, n-k) at $\alpha = 0.05$ (F_{tab}). Otherwise do not reject

Where n=36, k=4 and α=5%.

TABLE 1.3.4 F-STATISTIC RESULT

F-STATISTIC	**P>**|F|	**DECISION**	**CONCLUSION**
397.5715	0.000000	Reject H_0	Significant

Econometric Criteria (Second Order) Test.

Normality Test

As earlier stated in the methodology, the Jarque-Bera (JB) test of normality which follows a Chi-Square distribution with 2 d.f. is to be

adopted to check if the error terms follow the normal distribution.

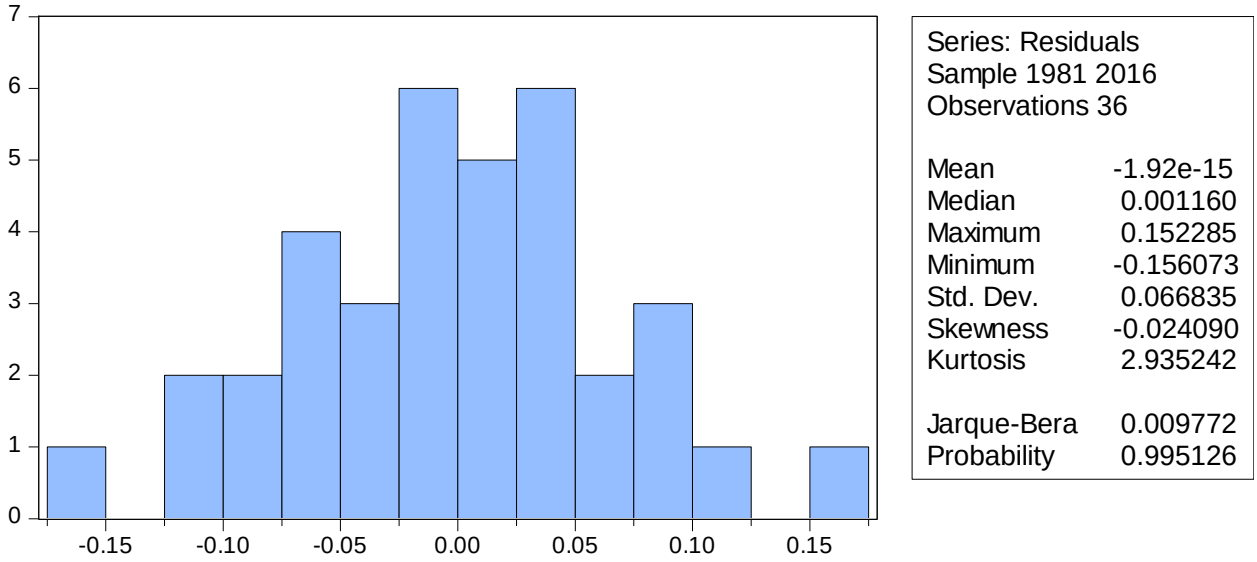
Hypothesis testing:

H_0: $\delta i = 0$ (the error term follows normal distribution).

The level of significance is 5% and the degree of freedom is 2.

Decision Rule:

Reject H0 if JBcal> JBtab (0.05) with 2 degrees of freedom, do not reject if otherwise.**Fig 1.2.: Normality Test Result**



Conclusion: Since the probability value (0.009772) < (0.05) we can conclude that the error term is not normally distributed.

4.5.2 Multicollinearity Test

One of the assumptions of the classical linear regression model is that there is no multicollinearity among the regressors included in the regression model. We test for the multicollinearity assumption by using the correlation matrix. In carrying out this test, a simple rule of thumb is that if the correlation coefficient is not up to 0.8, we say that there is no perfect or exact collinearity between the regressors included in the model but when the reverse is the case, there is perfect collinearity between the regressors in the model, (Gujarati, 2009).

Decision Rule

Case 1: if the r2 from the correlation matrix is more than 0.8, we conclude that there is a presence of multicollinearity.

Case 2: if the r2 from the correlation matrix is less than 0.8, we conclude that there is no multicollinearity.

The result of the correlation matrix is presented in the table that follows;

TABLE 1.3.4: Summary Of Multicollinearity For Model One

	FDI	RGDP	GOVTEXP	FAID	TSE
FDI	1.000000	-0.073890 (NM)	-0.064218 (NM)	0.075766 (NM)	-0.156244 (NM)
RGDP	-0.073890 (NM)	1.000000	0.328298 (NM)	0.860681	0.986240
GOVTEXP	-0.064218 (NM)	0.328298 (NM)	1.000000	0.335612 (NM)	0.316548 (NM)
FAID	0.075766 (NM)	0.860681 (NM)	0.335612 (NM)	1.000000	0.869771
TSE	-0.156244 (NM)	0.986240	0.316548 (NM)	0.869771	1.000000

Source: E-views 9.0

From the table above, it can be seen that there is multicollinearity real GDP and Tertiary School Enrolment, Foreign Aid and real GDP, Foreign Aid and Tertiary School Enrolment and Tertiary School Enrolment and Foreign Aid. This could result in the result that in a developing nation such as Nigeria there are poor means of data collection.

Heteroscedasticity Test

Here we test whether or not the residuals have constant variance or not. This is done by using White's General Heteroscedasticity Test which follows a normal distribution, with the degrees of freedom equal to the number of regressors minus the constant term in the auxiliary regression. Here the cross product of the regressors was included because according to Gujarati (2009), in cases where the White's heteroscedasticity test statistic is statistically significant, heteroscedasticity may not necessarily be the cause, but specification errors. In other words, the White heteroscedasticity test can be a test of pure heteroscedasticity or specification error or both. It has been argued that if no cross-product terms are present in the White test procedure, then it is a test of pure heteroscedasticity. If cross-product terms are present, then it is a test of heteroscedasticity and specification bias, (Harris,1995).

The null hypothesis is stated as:

H_0: There is no heteroscedaticity or more technically, the null hypothesis of homoscedaticity is stated as:

H_0: $\beta1 = \beta2 = \beta3 = \beta4 = \beta5 = 0$

Where: $\beta1 = \beta5$ are coefficients of the auxiliary regression.

Under the hypothesis, it has been shown that the sample size (n) times the R^2 obtained from the auxiliary regression asymptotically follows the chi-square distribution with a degree of freedom equal to the number of regressors (excluding the intercept term) in the auxiliary regression. That is:

$n.R^2$ - $X^2_{0.05}$ d.f with 5 d.f

Decision Rule: Reject H_0 if n. $R^2 > x^2_{0.0.05}$ with 5 degrees of freedom otherwise do not reject it.

n= number of observation = 36

Thus from the auxiliary regression result, $R^2 = 0.980871$

Therefore, 36*0.980871 = 35.311356

While $x^2_{0.05} = 9.48773$

From the result obtained, n. R^2 = 36(0.980871) = 35.311356. Since the Prob. (Chi-Square) 0.5079 is greater than 0.05, we do not reject H_0 thus, there is no heteroscedasticity in the model. We, therefore, conclude that there is equal variance.

4.5.4 Test Of Autocorrelation

The Durbin-Watson is used to test if the error term is serially correlated in the regression. This is done by comparing the Durbin-Watson lower bound (d_L) value from the Durbin-Watson table with the Durbin-Watson value gotten from the regression.

Decision Rule

Reject H_0 if $0 < d_L$ which implies positive autocorrelation. Otherwise do not reject.

Model Result

From the table, Durbin-Watson d_l =1.710724, we reject H_0 and conclude that there is statistically significant evidence of the presence of autocorrelation. This problem is corrected using the Newey-West HAC Standard Error Correction test.

Summary of Finding

This study looked at the impact of poverty on Nigerian economic growth. In order to verify the impact of poverty reduction on economic growth, Foreign Direct Investment (FDI), Foreign Aid (FAID), Government Expenditure (GOVTEXP) and Tertiary School Enrolment (TSE) are selected as proxies for poverty reduction.

The estimate of the econometric findings showed that Foreign Direct Investment (FDI), Government Expenditure (GOVTEXP) and Tertiary School Enrolment (TSE) are positively related to economic growth while Foreign Aid (FAID) is negatively related to economic growth. The projected result reveals that a unit increase in FDI will raise real GDP by around 0.057982 units on average, while a unit rise in government spending (GOVTEXP) will increase real GDP by about 0.007280 units on average. In addition, a unit increase in tertiary school enrolment (TSE) increases real GDP by about 0.064808 units on average, whereas a unit increase in foreign aid (FAID) reduces real GDP by about -0.019986 units on average.

The actual findings using a priori expectation of the correlation between economic growth and poverty reduction, using econometric criteria, reveal that Foreign Direct Investment (FDI), Government expenditure (GOVTEXP), and Tertiary school enrolment (TSE) all conform to the priori expectation, while Foreign Aid (FAID) does not. This could be because many types of foreign aid programs, while beneficial, do not have the same correlation or aim in the same direction as the recipient countries' economic goals and aims, making huge increases in aid inefficient. This is consistent with Abegaz's (2005) findings that foreign aid enhances economic growth when a receiving country's macroeconomic policies are well-aligned.

Policy Recommendation

The results of this study are pretty interesting. The regression results reveal that economic growth, foreign direct investment, government spending, and tertiary school enrollment all have a positive correlation. This implies that all stakeholders involved in national and economic planning at various levels of government should come together and reconsider how to create a sustainable environment and enact policies that will result in a steady inflow of foreign investment, which will improve the lives of the poor and sustain growth. More government spending should be focused on capital and precautionary projects rather than recurrent spending, as this will encourage aggregate productive investment, job creation, poverty reduction, and long-term growth. Because tertiary school enrollment has a positive impact on the economy, key economic players should increase spending to encourage tertiary enrollment, particularly by increasing the carrying capacity of tertiary institutions, improving the quality of services and facilities in tertiary institutions, and providing resource incentives to those qualified for tertiary education. Foreign aid, on the other hand, appears to be adversely associated with economic growth, indicating that any aid program established in Nigeria by a foreign donor agency will diminish economic growth. Nigeria's national government, at various levels, should ensure that foreign aid proposals are consistent with the

country's growth plan and economic policies. To enhance growth through foreign donations, the government should ensure that monies received from foreign organizations are spent on capital projects, technological advancements, and the establishment of a regulatory agency to ensure that aid resources are properly accounted for and implemented.

Conclusion

To summarize, the macroeconomic variables under study in this work, such as economic growth and poverty reduction, are part of the major focus issues confronting the Nigerian economy, with complex expectations that the Nigerian economy strives to achieve as the primary reasons it exists as an entity. When all else is equal, poverty reduction and economic growth are mutually beneficial. The government's inability to identify a flexible and efficient solution to the problem of poverty has hurt economic activity, long-term development, and environmental stability. Finally, as some of the key objectives of the Sustainable Development Goals (SDGs), the ultimate way to reduce poverty and increase economic growth at the same time is to simultaneously revitalize the dying and neglected economic sectors and to equitably allocate more reso ɔr investment rather than consumption.

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