CHAPTER TEN

IMPACT OF GOVERNMENT EXPENDITURE ON POVERTY IN NIGERIA

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Abstract

The study examined the impact of government expenditure on poverty in Nigeria for the period of 1990--2022. The study utilizes secondary sources of data extracted from the Central Bank of Nigeria annual statistics bulletin 2022, world development indicator 2022. The study undertakes a unit root test employing the augmented Dickey–Fuller (ADF) method to determine whether the variables are stationary, and the results show that the variables are all stationary at the first difference I(1). The study employed the Johansen cointegration test, and the results revealed evidence of long-term relationships among the variables. The study employed the robust least squares method for estimation. The findings revealed that government capital expenditure (GCE) had a nonsignificant positive impact on poverty in Nigeria during the period under study; similarly, the findings revealed that government recurrent expenditure (GRE) had a significant positive effect on poverty in Nigeria during the period under review. Furthermore, the findings revealed that government transfer (TRF) had a significant positive effect on poverty in Nigeria during the period of investigation. Therefore, the study revealed that government expenditure generally influences the poverty rate in Nigeria during the period of study. The study recommends that the government embark on poverty alleviation programs by providing infrastructure in rural areas and not only in cities. Adequate infrastructure will increase agriculture and the per capita income of the country because enough jobs will be created and the jobless populace will find employment.

Keywords: Government expenditure, Fiscal policy, and Poverty reduction

1. Introduction

The relationship between government spending and poverty reduction has been a subject of sustained interest and ongoing debate among scholars for decades. Governments typically perform two primary functions: protection (including security) and the provision of public goods (Al-Yousif, 2000). The protection function involves establishing the rule of law and enforcing property rights, which helps minimize criminality, safeguard life and property, and defend the nation against external threats. Public goods provision encompasses areas such as defense, infrastructure (roads, communications, power), education, and healthcare.

Many scholars argue that increased government spending on socioeconomic and physical infrastructure fosters economic growth. For instance, investments in health and education enhance labor productivity and increase national output. Similarly, expenditure on infrastructure such as roads, communications, and power reduce production costs, attract private sector investment, and increase firm profitability, thereby promoting economic growth. Researchers such as Abdullah (2000), Ranjan and Sharma (2008), and Cooray (2009) have concluded that expanding government spending positively contributes to economic growth and, consequently, to poverty reduction.

In Nigeria, the economy is characterized by a large rural population dependent on agriculture and a relatively small urban sector that benefits most from the nation's resources and government-provided services. This economic dualism has perpetuated high poverty levels in the country. Poverty is a global phenomenon that affects economies to varying degrees and impacts individuals differently across time and context (Odior, 2014). Fiscal policy, which involves the use of government expenditure, borrowing, and taxation to influence economic activities and growth, plays a crucial role in shaping total demand, productivity, and employment (Medee & Nenbee, 2011).

During periods of economic downturns and high unemployment, increasing government expenditure can increase aggregate demand, even as the production and supply of commodities decline. These fiscal measures are essential strategies for poverty alleviation through government spending. According to Asghar *et al.* (2012), heightened government investment in sectors such as health, education, agriculture, and social amenities can help alleviate poverty, reduce transaction costs, and develop the country's human capital.

From a Keynesian perspective, government expenditure can stimulate aggregate demand, thereby fostering economic growth and employment. Empirical studies by Ogiogio (1995), Fajingbesi and Odusola (1999), and Abu *et al.* (2010) demonstrate that real government capital expenditure, as a fiscal policy tool, significantly positively influences real output growth and, by extension, poverty reduction. Government spending is one of the most vital tools available to poor countries in combating poverty (Obi, 2007; Obadan, 2001). This research focuses on fiscal policy among macroeconomic policies because it can indirectly reduce poverty and directly target specific groups or pro-poor segments vulnerable to natural or economic shocks (Damuri & Perdana, 2003).

Sanusi (2018) posits that Nigeria's economic challenges stem from resource mismanagement and misplaced priorities. Funds intended for power, education, and the establishment of new industries to create employment are often mismanaged. Despite rising government spending fueled by substantial revenues from crude oil production and sales, as well as increased demand for public utilities such as roads, communication, power, education, and health, meaningful economic growth and poverty reduction have not been realized. The structure of Nigerian public expenditure is broadly categorized into capital expenditure and recurrent expenditure. Recurrent expenditure includes administrative costs such as wages, salaries, interest in loans, and maintenance, whereas capital expenditure cover projects such as roads, airports, education facilities, telecommunications, and electricity generation. Providing and maintaining infrastructural facilities requires substantial government spending.

Unfortunately, the increase in government spending has not translated into significant growth or poverty reduction, as Nigeria remains one of the poorest countries globally. More than half of the population lives on less than US\$2 per day, exacerbated by dilapidated infrastructure—particularly roads and power supplies—which has led to the collapse of many industries and high unemployment rates. Additionally, adverse macroeconomic indicators such as the balance of payment issues, import obligations, high inflation rates, unfavorable exchange rates, and low national savings have persisted, further aggravated by population growth. This study seeks to answer the following research questions: What is the impact of government capital expenditure on poverty in Nigeria? What is the impact of government recurrent expenditure on poverty in Nigeria? What is the impact of government transfer payments on poverty in Nigeria?

2. Literature Review

Conceptual Clarification

Government Expenditure: Government expenditure are broadly defined as the costs incurred by the government in fulfilling its functions, particularly in providing public goods and services (Ogboru, Abdulmalik & Park, 2018; Omodero & Dandago, 2019). It encompasses total spending by the government on goods, services, and investments to meet public needs and achieve policy objectives (Richardson, 2020). This financial outlay occurs at various levels— national, regional, or local—and includes expenditure on education, healthcare, infrastructure, defense, and social welfare (Musgrave & Musgrave, 1989). Government spending also covers the costs involved carrying out administrative regulatory in and responsibilities, as well as delivering public goods and services with the ultimate goal of promoting economic growth and societal welfare (Inman & Rubinfield, 2018). Some scholars view government expenditure as the total outlay on goods, services, and transfers, such as wages, salaries, pensions, subsidies, and grants, all of which are financed through taxation, borrowing, or other revenue sources (Mankiw, 2016). It represents aggregate spending by the government, which is a key factor in determining overall aggregate demand and can significantly influence economic growth and stability (O'Sullivan, et al., 2019).

Capital expenditure, on the other hand, refers to government spending directed toward capital goods and long-term investments that enhance the productive capacity of the economy. This includes projects such as railways, dams, and other infrastructure developments. According to Isedu (2002), one significant way capital expenditure reduces poverty is through job creation, as it helps address the multifaceted issue of unemployment. Additionally, capital expenditure contributes to economic growth by reallocating resources from surplus areas to deficit areas, opening new opportunities that can improve the standard of living for citizens. Mankiw (2016) further explains that government capital expenditure include investments in physical assets such as infrastructure projects, public buildings, and transportation systems, which are crucial for long-term economic development.

Recurrent expenditure, in contrast, include government spending on administrative costs such as wages, salaries, interest in loans, and maintenance. It also covers public services and infrastructure projects such as roads, airports, healthcare, education, electricity generation, telecommunications, and water supply. Public expenditure, therefore, serves as an essential tool for creating a more egalitarian society by providing welfare facilities (Ogba, 1999). In Nigeria, government spending is functionally categorized into four areas: administration, economic services, social and community services, and transfers, with separate classifications for capital and recurrent expenditure in each sector (CBN, 2011). Similarly, Regina, Onwumere, and Imo (2012) categorize government spending into capital expenditure and recurrent expenditure.

Government transfer payments refer to the financial resources, goods, or services provided by the government to individuals, households, or organizations for various purposes, such as social welfare, income redistribution, or economic stabilization (Pierson, 2001). These transfers aim to alleviate poverty, enhance social wellbeing, and provide a safety net for vulnerable groups. Programs such as social assistance, unemployment benefits, pensions, and child allowances fall under this category (Bradshaw, *et al.*, 2016). Handa and Davis (2016) describe government transfers as the direct

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provision of cash or other benefits to eligible individuals or households, with the objective of reducing poverty, improving living standards, and empowering recipients to make informed decisions about resource allocation.

Poverty: The World Bank (2004) defines poverty as a multifaceted deprivation of welfare, encompassing a range of dimensions. It is characterized by low income and an inability to access basic goods and services essential for survival and maintaining self-respect. Poverty also extends to limited access to education and healthcare, inadequate potable water and sanitation, poor physical security, lack of voice in societal matters, and restricted capacity or opportunity to improve one's quality of life (World Bank, 2004). In essence, poverty reflects the deprivation of choices and opportunities, violating human dignity.

Poverty is not merely about a lack of financial resources; it is the inability to participate effectively in society. It manifests as the absence of sufficient food, clothing, and shelter for a family; a lack of access to education or healthcare; and exclusion from economic activities such as owning land or obtaining credit. Moreover, poverty signifies insecurity, powerlessness, and social exclusion for individuals, families, and communities. It often includes exposure to violence and involves living in vulnerable or marginal environments without adequate access to clean water and sanitation (UNDP, 2009).

Various schools of thought have proposed different strategies to reduce poverty. The Mercantilists, for example, emphasized the role of foreign trade as a key mechanism for promoting economic growth and reducing poverty. In contrast, Classical economists—such as Adam Smith, David Ricardo, Thomas Malthus, and Karl Marx focused on the social transformations driven by technological advances during the Industrial Revolution (1750--1850), highlighting how these changes could impact poverty. Early development economists in the 1940s and 1950s advocated strategies such as forced-drift industrialization, the "big push" theory, balanced growth, and labor transfer as ways to address poverty (Ijaiya, 2002). Chenery *et al.* (1974) took a more radical approach, advocating for the redistribution of income and land as a means of addressing poverty. They argued that poverty could be more effectively reduced if there was a significant redistribution of wealth, given the entrenched power dynamics and self-interest of the rich and the bureaucratic elite in controlling national resources. In their view, such redistributive measures would be essential for dismantling the systemic barriers that perpetuate poverty.

The World Bank (1983; 1990; 1991) underscores the necessity of stable macroeconomic policies and sustained economic growth as essential drivers of poverty reduction. According to the World Bank, implementing sound fiscal and monetary policies is critical in fostering a conducive environment for private investment, which, in turn, stimulates productivity and economic development, ultimately reducing poverty over time (Dollar & Kraay, 2000; Sandstorm, 1994; Edwards, 1995). This framework is often referred to as the "pro-poor growth" approach to poverty alleviation. From the 1980s to the early 2000s, global strategies for poverty reduction evolved, introducing approaches various such basic needs and as the capabilities/entitlements approach, participatory development, social capital, community self-help, good governance, and human rightsbased approaches (Boeniniger, 1991; Picciotto, 1992; Woolcock & Narayan, 2000; United Nations, 2002; 2004).

In Nigeria, multiple stakeholders, including the government, nongovernmental organizations, and private individuals, have undertaken various initiatives aimed at addressing poverty. Ogwumike (2001) noted that the focus of these efforts has predominantly been on economic growth, basic needs provision, and rural development strategies. The economic growth approach focuses on rapid increases in real per capita GDP, stabilizing prices, and reducing unemployment, which are achieved through coordinated fiscal and monetary policies. The basic needs approach, on the other hand, aims to ensure the provision of essential services such as food, healthcare, education, housing, and sanitation, enabling the poor to achieve a decent standard of living. Rural development initiatives targeted the comprehensive transformation and empowerment of rural communities, seeking to improve living conditions and economic opportunities for the rural poor.

Ogwumike (2001) further categorized Nigeria's poverty reduction strategies into three phases: the pre-SAP era, the SAP era, and the democratic era. During the pre-SAP era, poverty alleviation programs included initiatives such as Operation Feed the Nation, River Basin Development Authorities, Agricultural Development Programmes, the Agricultural Credit Guarantee Scheme, the Rural Electrification Scheme, and the Green Revolution. The SAP era included the introduction of several poverty reduction measures, such as the Directorate for Food, Roads, and Rural Infrastructures, the National Directorate of Employment, the Better Life Programme, the People's Bank, Community Banks, the Family Support Programme, and the Family Economic Advancement Programme. In the democratic era, the government launched the Poverty Alleviation Programme (PAP), which was designed to create 200,000 jobs nationwide and promote the maintenance of public infrastructure, including highways and rural roads. By 2001, PAPs were merged with the National Poverty Eradication Programme (NAPEP), which became an integral part of the National Economic Empowerment and Development Strategy (NEEDS).

Classical economic theory largely attributes poverty to individual characteristics and behaviors. However, Rankin and Quane (2000) were unable to substantiate the "culture of poverty" argument empirically, and Elesh (1970) challenged its consistency across different poor populations. These criticisms shifted the discourse on poverty, with Keynesian and liberal economists offering structural explanations that moved away from individual blame. Keynesian economists recognize that unequal initial endowments—such as disparities in talent, skills, and capital—largely determine individual productivity levels. As Jung and Smith (2006) explain, Marshall and Keynes attributed poverty to underdevelopment and deficits in human capital. Moreover, market failures, such as uncertainty and vulnerability to economic shocks, disproportionately affect the poor, perpetuating poverty. Keynesian economics views poverty as a consequence of structural factors beyond individual control, including economic, social, and political barriers. The liberal perspective emphasizes the role of market distortions, institutional rigidities, and general underdevelopment in perpetuating poverty, advocating for government intervention to promote economic development and social welfare (Davis & Sanchez-Martinez, 2014). During the Great Depression, Keynes argued that expansionary fiscal policies could stimulate aggregate demand, reduce unemployment, and alleviate poverty, particularly since the poor primarily rely on labor as their main economic asset (Hull, 2009). Structural issues such as inadequate human capital, a lack of business capital, insufficient infrastructure, and weak public institutions further exacerbate poverty by leading to involuntary unemployment. In such contexts, government intervention through targeted policies and investments is crucial for stimulating economic growth and reducing poverty through the multiplier effect.

Despite the numerous poverty reduction programs and policies implemented in Nigeria, the poverty level remains alarmingly high. The ineffectiveness of these policies can be attributed to structural deficiencies, poor policy design, or the absence of robust implementation plans tailored to Nigeria's specific poverty dynamics. Consequently, the persistence of poverty suggests that more targeted, well-coordinated, and context-specific interventions are needed to address the root causes of poverty and enhance the effectiveness of poverty alleviation strategies.

Theoretical Review

This study reviews theories that are important to studies that link government expenditure to poverty.

Income and Income Allocation Theory of Poverty: The income and income allocation theory of poverty, as described by Solomon (1980), examines Marx's economic principles, particularly focusing on his theory of income and its allocation. Central to this theory is Marx's labor concept of value, which posits that labor is the foundation of income distribution. The theory emphasizes

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labor market dynamics, especially the determinants of labor income, which are shaped by factors such as supply and demand, education levels, motivation, age, and geographic location. In this context, Eyong's interpretation of the theory predicts a positive correlation between poverty rates and unemployment rates. According to this view, an increase in employment without a corresponding rise in productivity in goods and services can lead to "disguised unemployment." This situation, where workers are employed but not producing at optimal levels, can exacerbate poverty and contribute to inflation. Such inflation tends to benefit debtors while harming creditors, creating further economic imbalances. Eyong conducted his analysis of income allocation theory by proposing that effective poverty reduction policies must address both inflation and unemployment. Specifically, these policies should aim to reduce inflation rates and simultaneously address the underlying causes of unemployment, ensuring that employment growth is accompanied by corresponding productivity improvements.

Classical Theory of Poverty: The classical theory of poverty, as proposed by economists such as Adam Smith, David Ricardo, and Thomas Malthus in the 18th and 19th centuries, emphasizes the self-regulating nature of the market, where resources are efficiently allocated to production units. According to this theory, poverty is not the result of market failure but rather individual decisions related to work and productivity. Redistribution of resources occurs naturally in a free market, and wages reflect one's productivity. As such, poverty is seen as the outcome of poor individual choices, such as a lack of education or laziness (Davis & Sanchez-Martinez, 2014). From this perspective, deprivation stems from personal decisions, and hard work is considered sufficient to overcome poverty. This view often leads to the perception that those in poverty deserve their situation, as they supposedly perpetuate a "culture of poverty" that passes from generation to generation (Davis & Sanchez-Martinez, 2014). Bradshaw (2006) expands on this idea by noting that American

values, particularly individualism, suggest that success is driven by personal effort, motivation, and perseverance, whereas failure is attributed to individual choices. Consequently, poverty is seen as a personal responsibility, and society or government intervention is discouraged. Public spending to combat poverty is often opposed, as it is believed to interfere with market mechanisms and create inefficiencies. However, classical economists suggest that governments can provide support programs that encourage individuals to engage in productive work, but any anti-poverty initiatives should include a self-help component. They argue that welfare programs might increase poverty by creating dependency and reducing individuals' motivation to work, thereby reinforcing the very poverty they aim to address.

Endogenous growth theory: The endogenous growth theory, introduced by Paul Romer in 1986, emerged in response to the limitations of Solow's growth model, which cannot fully explain the drivers of economic growth. Romer argued that technological advancements are not random but can be influenced and directed, making them endogenous to economic growth. In this framework, human capital and investments in innovation play crucial roles in growth. Unlike the Solow model, where technology is an external factor, the new growth theory emphasizes knowledge as a public good that fuels continuous innovation and economic expansion (Romer, 1990). This theory challenges the law of diminishing returns, which suggests that increased inputs lead to lower outputs. Instead, Romer's model attributes long-term growth in developed countries to the spillover effects of knowledge and technological innovations.

spillover effects of knowledge and technological innovations. **Marxist Theory of Poverty:** The Marxist theory of poverty, developed by Karl Marx in 1867, presents a radical departure from classical economic theories by focusing on the role of capitalism and class division in perpetuating poverty. According to Marxist thought, poverty is a consequence of the inherent dysfunctions of capitalist economies, where the owners of capital (the ruling class) accumulate wealth while laborers earn low wages (Blank, 2003; Bradshaw, 2006). Marxists argue that the market is manipulated to maintain a "reserve army of unemployed," which keeps labor costs artificially low and prevents workers from saving, making them more vulnerable to poverty during economic shocks (Davis & Sanchez-Martinez, 2014). Moreover, Marxist theory highlights the dual nature of labor markets: the primary sector offers stable employment, good wages, and union representation, whereas the secondary sector is characterized by unstable jobs, low wages, and weak labor rights. Poverty, according to this theory, is largely a product of the inherent dysfunction of the secondary labor market rather than individual failure. Reducing poverty in a Marxist framework requires regulatory intervention to improve labor market conditions, such as setting minimum wages, enhancing working conditions, and promoting stronger labor unions. Instead of increasing public expenditure, the focus is on correcting market imbalances through regulation.

Empirical review

Almajdob and Shtewi (2023) conducted a comprehensive analysis of the impact of government expenditure on poverty alleviation in Arab Spring countries via time series data from 1980--2013. Using advanced econometric techniques such as unit root tests, bound testing for cointegration, and error correction methods within an autoregressive distributed lag (ARDL) framework, their study provided robust estimates. The findings revealed that government spending positively and significantly influences economic growth by enhancing real private investment and fixed capital accumulation. This increase in capital accumulation subsequently reduces the current account deficit and external debt burden while also improving household education and skills through enhanced human capital development. Additionally, the study revealed that government expenditure has a significant short-term impact on poverty reduction in its lagged form, highlighting the critical role of fiscal policy in addressing current-year poverty levels. On the basis of these results, Almajdob and Shtewi (2023) suggest that government policies should be expanded to maximize both the magnitude and quality of private investment to effectively mitigate poverty. Yusoff, *et al.* (2022) examined the effects of government expenditure on poverty levels in Malaysia via a nonlinear autoregressive distributed lag (NARDL) model with annual time series data from 1970--2019. The bounds test for the NARDL specification confirmed the presence of cointegration among key variables, including poverty level, development expenditure, GDP per capita, inflation rate, physical capital, and human capital. The empirical analysis demonstrated that while increases in development expenditure do not significantly reduce poverty, reductions in development expenditure are associated with significant long-term declines in poverty levels. To ensure the robustness of their findings, the researchers also assessed the share of development expenditure has minimal impact on poverty reduction in both the long and short terms. Consequently, Yusoff *et al.* (2022) advise the Malaysian government to prioritize the effective allocation of public funds and ensure that development gains are equitably distributed across all economic sectors to more effectively influence poverty levels.

development gains are equitably distributed across an economic sectors to more effectively influence poverty levels. Oriakhi (2021) explored the relationships among poverty reduction, government expenditure, and economic growth in Nigeria via a vector error correction model (VECM). The study incorporated variables such as poverty reduction (POVRd), total government expenditure (TGEXP), real gross domestic product per capita (RGDPpc) as a proxy for economic growth, and natural resource rents (NRENT). Employing the block exogeneity Wald test to determine causality, the VECM to assess the speed of adjustment and short-run transmission mechanisms, forecast error variance decomposition to evaluate the impact of shocks, and the inverse roots of AR characteristics polynomial to ensure model stability, Oriakhi (2021) reported bidirectional causality between total government expenditure and poverty reduction in Nigeria. These findings suggest that government spending influences not only poverty reduction but also poverty levels. Oriakhi (2021) concludes by recommending an increase in government expenditure, the adoption of pro-growth and pro-poor policies, and the establishment of transparent and corruptionfree governance to effectively reduce poverty. Patricia, *et al.* (2021) investigated the relationship between government expenditure and poverty reduction in Nigeria via time series data from 1980--2013. The study employed sophisticated time series econometric techniques, including unit root tests, bound testing for cointegration, and error correction methods within an ARDL framework, ensuring robust and reliable estimates. The results indicated that government spending positively and significantly impacts economic growth by boosting real private investment and fixed capital accumulation. This leads to increased capital accumulation, a reduction in the current account deficit and external debt burden, and improvements in household education and skills through enhanced human capital. Additionally, the study revealed that government expenditure has a significant short-term impact on poverty reduction in its lagged form, underscoring the importance of fiscal policy in addressing immediate poverty issues. Patricia *et al.* (2021) suggest that government roles should be expanded to maximize both the magnitude and quality of private investment, thereby enhancing the effectiveness of poverty alleviation efforts.

enhancing the effectiveness of poverty alleviation efforts. Omodero and Okpara (2019) examined the impact of government sectoral expenditure on poverty alleviation in Nigeria, addressing a critical issue in developing countries, particularly in Africa, which accounts for two-thirds of the world's population living in extreme poverty. According to the World Poverty Clock, half of Nigeria's population lives in poverty, indicating the ineffectiveness of the Millennium Development Goals (MDGs) agenda in the country, despite Nigeria being Africa's largest economy. This study analyzed secondary data covering the period from 2000--2017 via the ordinary least squares (OLS) technique. The regression results revealed that government spending on sectors such as agriculture, building and construction, education, and health does not have a significant effect on poverty alleviation in Nigeria. Consequently, Omodero and Okpara (2019) conclude that government expenditure in these key sectors are insufficient for effectively reducing poverty. They recommend that the government should allocate more funds to these sectors to increase their capacity to eradicate poverty in the country.

3. Methodology

The study utilizes an expost facto research design to empirically examine the impact of government expenditure on poverty reduction in Nigeria from 1990--2022. This research is anchored in the endogenous growth theory developed by Romer (1994), which asserts that economic growth is driven primarily by investments in human capital, knowledge management, and innovation (Romer, 1994). According to this theory, government expenditure on education, research and development (R&D), infrastructure, capacity building, and power generation are essential for fostering economic growth and reducing poverty in a country. This expenditure contributes to the dissemination of a shared knowledge pool derived from international technological spillovers. Technology, as a universally accessible and transformative force, transcends geographical boundaries and national identities. By harnessing technology, governments can effectively address poverty through increased access to education and skills development, improved healthcare services (including telemedicine), enhanced financial inclusion, and digital payment systems. These initiatives promote entrepreneurship, job creation, and economic connectivity in marginalized rural areas, thus unlocking economic opportunities for disadvantaged populations. Consequently, such government spending leads to a skilled and productive labor force, the adoption of advanced technologies, and the enhancement of technical expertise, all of which contribute to poverty alleviation.

This study applies the robust least squares (RLS) regression model, developed by Yohai (1987), to estimate the parameters. This model is advantageous because of its best linear unbiased estimator (BLUE) properties. Additionally, it minimizes the influence of outliers and extreme data points, thus addressing issues related to violations of distributional assumptions and heteroscedasticity. The general form of the robust least squares regression model (RLS) is specified as follows: The MM estimator is expressed as follows:

$$\frac{\sum_{i=1}^{n} \rho 1(\text{vi}) X_{ij} = 0 \text{ or } \sum_{i=1}^{n} \rho 1(\gamma i -)^{n} + \frac{n \sum_{j=0}^{k} X_{ij} \beta_{j} \rho_{1}(\text{vi})}{SMM} X_{j} = 0 \dots (3.1)$$

where:

where X' is the transpose of the matrix X and the exponent (-1) indicates the inverse matrix of the given quantity.

Model Specification

The model for this study was adapted from the work of Umeh, Cyril1, Nzotta, Chris-Ejiogu, and Gloria (2023), who investigated the effect of fiscal policy on poverty in Nigeria. Their model was as follows:

PIt= $\beta 0+\beta_1$ FRR t+ β_2 GCEt+		
β_3 GREt+ β_4 NOR,+ β_5 PD+ ut	(3.2))

where:

PI = Poverty index;

FRR = Federal Retained Revenue;

GCE =Government capital expenditure;

GRE = Government Recurrent expenditure;

NOR =Non-Oil Revenue, and

PD = public debt,

where β_0 , β_1 , β_2 , β_3 , β_4 and β_5 are parameters to be estimated.

Ut = Error term;

Equation (3.2) was adjusted. Thus, the model was modified by stating that the poverty head count ratio is a function or dependent on government capital, government recurrent expenditure, and government transfers. Written as:

 $PHCR = F(GCEt, GREt, TRFt) \dots (3.4)$

The econometric regression form of the model is as follows:

 $PHCR_t = \beta_0 + \beta_1 GCE_t + \beta_2 GRE_t + \beta_3 TRF + Ut \dots (3.5)$

Since the variables are in different units of measurement, equation (3.5) was expressed in a log form to convert all the variables into the same unit of measurement as follows:

 $ln PHCR_t = \beta_0 + \beta_1 ln IGCE_t + \beta_2 ln GRC_t + \beta_3 ln TRF + U_t.....(3.6)$ where:

 $PHCR_t = Poverty head count ratio at time t;$

 $GCE_t = Government capital expenditure at time t;$

 $GRE_t = Government$ recurrent expenditure at time t;

TRFt = Government transfer payment at time t;

Ln = Logarithm;

 β_0 = Intercept of the regression model;

 $\beta 1 - \beta 3 =$ Coefficients of the explanatory variables; and

U = the error term.

The model a priori expectations are that β_0 , β_1 , β_2 , $\beta_3 > 0$. That is, the variables are expected to have positively impacted poverty in Nigeria.

The study employed preestimation tests, such as the unit root test, the Johansen cointegration test, and the causality test, as well as postestimation tests, such as the model stability test and test of hypotheses.

4. Results and Discussion

The data collected from the various secondary sources include annual time series on government capital expenditure (GCEs), government recurrent expenditure (GREs), and government transfer payments (TRF) on the poverty proxy by the poverty headcount ratio (PHCR) in Nigeria for the period 1990--2022.

= = .			- () •••*		
_	Unit Root at First Difference				
Series	ADF	Critical T-		Order of	Remarks
	T-Statistics	Statistics	P Values	Integration	
PHCR	-6.305778**	-2.960411	0.0000	I(1)	Reject H ₀
GCE	-5.451901**	-2.971853	0.0001	I(1)	Reject H ₀
GRE	-4.402527**	-3.622033	0.0103	I(1)	Reject H ₀
TRF	-4.208166**	-3.562882	0.0120	I(1)	Reject H ₀

Table 1: Augmented Dick	ey–Fuller (ADF) test results
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The stationarity of the variables at different levels of significance is indicated. For example, *, **, and *** represent the ***10%, **5% and *1% levels of significance, respectively.

Source: Extracts from E-views Output

Note Down: The test was conducted at the 5% level of significance.

The unit root test results in Table 1 show that all the variables (PHCR, GCE, GRE, and TRF) when tested at level I(0) have unit roots or are not stationary. This is evident from their p values, which are greater than the 0.05 level of significance otherwise. However, when the variables were tested at first difference or I(1), they (PHCR, GCE, GRE, and TRF) all had no unit roots or became stationary. This is evident from their p values, which are less than 0.05. In general, the unit root test results show that the variables under study have a stochastic trend and are good for inclusion in the chosen model for their parameter estimation. This shows that the variables have a trend order of integration, which makes it suitable for the application of the model.

Johansen Cointegration Test Results

The results of the Johansen cointegration test are presented in Table 2.

I dole 21 5 ollali	sen connegium	on test results		
Hypothesized		Max-Eigen	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical	Prob.**
			Value	
None *	0.963218	92.47719	27.58434	0.0000
At most 1 *	0.656586	29.92694	21.13162	0.0022
At most 2 *	0.411460	14.84309	14.26460	0.0405
At most 3 *	0.305680	10.21503	3.841465	0.0014

Table 2: Johansen cointegration test results

Max-eigenvalue test indicates 4 cointegratingeqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

Source: Extracts from E-views Output

An assessment of the data in Table 2 shows that the Max-Eigenvalue statistics reveal four unique cointegrating equations between the variables: PHCR, GCE, GRE and TRF at the 5% level. Thus, it can be concluded that there was a long-term relationship between government expenditure and poverty in Nigeria from 1990--2022. Since there are at least four cointegrating equations found in the model, the study concludes that a significant long-term relationship exists among the variables. Additionally, all the variables were found to be stationary and cointegrated.

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Table 3: Granger Causality Test Results					
Null Hypothesis:	Obs	F-Statistic	Prob.	Decision	Remark
GCE does not Granger Cause PHCR	32	7.32249	0.0113	Reject Ho	Uni-directional
PHCR does not Granger Cause GCE		0.63144	0.4333	Accept H ₀	
GRE does not Granger Cause PHCR	32	5.81762	0.0224	Reject Ho	Uni-directional
PHCR does not Granger Cause GRE		0.55842	0.4609	Accept H ₀	
TRF does not Granger Cause PHCR	32	6.45650	0.0167	Reject H ₀	Uni-directional
PHCR does not Granger Cause TRF		0.44100	0.5119	Accept H ₀	
Source: Extracts from E-views Output					

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Considering the nature of the causality between the GCE and PHCR, this study rejects the null hypothesis that the GCE does not Granger cause PHCR since the probability (0.0113<0.05) is statistically significant at the 5% critical level. However, the null hypothesis that the PHCR does not Granger cause GCE is not rejected. This implies that there is evidence of unidirectional causality from the GCE to the PHCR, meaning that changes in government capital expenditure can help predict changes in the poverty headcount ratio in Nigeria.

Considering the nature of the causality between GRE and PHCR, this study rejects the null hypothesis that GRE does not Granger cause PHCR since the probability (0.0224<0.05) is statistically significant at the 5% critical level. However, the null hypothesis that the PHCR does not Granger cause GRE is not rejected. This implies that there is evidence of unidirectional causality from GRE to PHCR, meaning that changes in government recurrent expenditure can help predict changes in the poverty headcount ratio in Nigeria.

Considering the nature of causality between TRF and PHCR, the null hypothesis that TRF does not Granger cause PHCR is rejected since the probability (0.0167<0.05) is statistically significant at the 5% critical level. However, the null hypothesis that the PHCR does not Granger cause TRF is not rejected. This implies that there is evidence of unidirectional causality from TRF to PHCR, meaning that changes in government transfer payments can help predict changes in the poverty headcount ratio in Nigeria.

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	1			
Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	4.480681	0.025481	175.8425	0.0000
GCE	0.014472	0.012108	1.195229	0.2320
GRE	0.057938	0.023885	2.425677	0.0153
TRF	0.057132	0.021816	2.618745	0.0088
	Robust Stat	istics		
R-squared	0.882600	Adjusted	R-squared	0.098042
Rw-squared	0.751840	Adjust R	w-squared	0.351840
Akaike info	48.37091	Schwarz criterion		54.80356
criterion				

Table 4: Robust Least Square Test Results

Source: Extracts from E-views Output

The findings presented in Table 4 reveal information on the impact of government expenditure on poverty (PHCR) in Nigeria. The coefficient of government capital expenditure (GCE) is positive (0.014472), indicating a positive relationship between the GCE and the PHCR. This aligns with theoretical expectations, suggesting that, all else being equal, a unit increase in the GCE leads to a 1.4% rise in the PHCR. However, since the p value for the GCE (0.2320) exceeds the 0.05 significance threshold, the null hypothesis (H0) is rejected. This suggests that GCE has an insignificant impact on poverty in the long run. The limited effect of GCE on poverty reduction may be attributed to the misappropriation of funds allocated for capital projects intended to provide jobs and reduce poverty. Moreover, insufficient funding for capital projects aimed at poverty alleviation may also explain the weak influence of GCE. These results align with those of previous studies by Oriakhi (2021), Joy, Okafor, and Ohiorenuan (2021), and Omodero and Okpara (2019), which similarly reported that government capital expenditure positively affects poverty.

The findings presented in Table 4 reveal information on the impact of government expenditure on poverty (PHCR) in Nigeria. The coefficient of government recurrent expenditure (GCE) is positive (0.057938), indicating a positive relationship between GRE and the PHCR. This aligns with theoretical expectations, suggesting that, all

else being equal, a unit increase in GRE leads to a 5.7% rise in the PHCR. However, since the p value for GRE (0.0153) does not exceed the 0.05 significance threshold, the null hypothesis (H0) is rejected. This suggests that GRE has a significant impact on poverty in the long run. The reason for the slow poverty reduction rate may be attributed to the fact that the country has recorded so much in terms of misappropriation of funds meant to be issued to recurrent expenditure projects such as training (skill acquisition), which would provide requisite knowledge on how to be self-independent and subsequently alleviate poverty. Another reason may be that there are not enough funds allocated to recurrent projects that would alleviate poverty in Nigeria. The findings of this study are in tandem with those of Oriakhi (2021), Omodero, and Okpara (2019), who examined the impact of government expenditure on poverty reduction in Nigeria and reported that government recurrent expenditure have a positive impact on poverty.

The coefficient (0.057132) of government transfer (TRF) is positive, indicating a positive impact between government transfer and the poverty headcount ratio (PHCR) in Nigeria. This is in line with a priori expectations. The coefficient of government transfer implies that all things being proportionately equal to a unit change in TRF tend to increase the PHCR by 5.7% during the period under review. The p value (0.0153) for the coefficient of TRF was less than the 0.05 level of significance. Therefore, the study rejects H₀ and concludes that TRF has a significant effect on poverty (PHCR) in Nigeria. The results of this study indicate that government transfer has a strong influence on poverty reduction in Nigeria in the long run during the period of review. The reason is that government transfer payments to individuals by the federal government through various social programs may be attributed to the fact that it has recorded so much in terms of improving the poverty alleviation system that has been effectively utilized for the improvement of the populace.

The coefficient of multiple determination from the robust statistics (R-square = 0.882600) shows that the variability in the explanatory variables (GCE, GRE, and TRF) accounts for 88% of the variability in the PHCR. This suggests that the model has a good fit.

Conclusion and Policy Recommendations

This study examined the impact of government expenditure on the poverty rate in Nigeria from 1990--2022. Given the results of the unit root test, cointegration, and RLS model results, the variables are cointegrated at order (1), which justifies the application of the RLS model. Consequent to the cointegration result, the model was analyzed via the RLS method of analysis. The long-term regression estimate revealed that government capital expenditure, government recurrent expenditure, and government transfers had positive impacts in the long-term analysis and mixed significant impacts on the poverty rate in the long-term.

- i. The government should prioritize the development of infrastructure, particularly in rural areas, to support poverty alleviation. Relevant ministries, such as the Ministry of Works and Housing and the Ministry of Agriculture, should lead this effort. They should focus on constructing essential infrastructure, such as electricity, water, and agricultural support systems. This will help stimulate agricultural activities, create employment opportunities, and increase per capita income by providing rural dwellers with access to job markets and improving productivity in farming. Local governments can be mobilized to ensure the equitable distribution of these infrastructures.
- ii. Investment in education is critical to reducing poverty. The Federal Ministry of Education, in collaboration with state governments, should implement scholarship programs that target low-income families. This can be accomplished by introducing transparent scholarship schemes that involve community-based organizations and educational institutions to identify deserving beneficiaries, ensuring that these opportunities are not monopolized by affluent individuals. Scholars should prioritize merit and need, giving poor people better access to education and improving their socioeconomic standing in the long run.
- iii. To facilitate poverty reduction, the government should invest in constructing and maintaining roads, bridges, railways, and markets, particularly in underserved areas. The Ministry of

Transportation and state-level public works agencies should be tasked with these projects. An improved transportation infrastructure promotes the free movement of goods, particularly agricultural products, from rural areas to urban markets, thereby increasing trade, reducing transportation costs, and creating jobs. The government should also engage in public–private partnerships to ensure the sustainability of these projects.

- iv. The government, through the Ministry of Health, should enhance healthcare services, particularly for poor communities. This can be achieved by building and equipping hospitals and health centers in rural and low-income urban areas. Partnerships with nongovernmental organizations (NGOs) focused on healthcare access for the poor can be instrumental in providing affordable or free healthcare services. Mobile health clinics can also be deployed to reach remote regions. Special attention should be given to maternal and child health, where poverty significantly affects health outcomes.
- v. Rural security must be improved to promote farming activities and other forms of economic engagement. The Ministry of the Interior and the Nigerian Police Force should collaborate with local vigilante groups and community leaders to increase security, particularly in areas where insecurity has displaced people from their farms. These efforts reduce the risk of kidnappings and other violent crimes that discourage farming and other rural livelihoods. A secure environment will enable farmers to return to their fields and contribute to poverty reduction by increasing agricultural productivity.

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