

A Disaggregated Analysis of how Government Spending affects Poverty and Inequality in Nigeria

By

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Abstract

This study provides a disaggregated empirical analysis of how specific components of government expenditure affect poverty and inequality in Nigeria from 1981 to 2024. Moving beyond aggregate fiscal analysis, the research employs an Autoregressive Distributed Lag (ARDL) modelling approach to isolate the differential impacts of government spending on economic services, agriculture and water resources, and transport and communication. The findings reveal that the composition of public spending is paramount, with effects varying significantly across sectors and between the two socio-economic targets. Expenditure on agriculture and water resources is found to be a potent tool for poverty reduction in both the short and long run. Conversely, investment in transport and telecommunication infrastructure emerges as a powerful instrument for mitigating inequality. However, a critical finding is the regressive nature of broad "other economic activities" spending, which exacerbates poverty despite superficially reducing inequality metrics, highlighting severe targeting failures. The study concludes that transforming Nigeria's fiscal policy into an effective instrument for inclusive development requires precision in sectoral prioritization, enhanced targeting mechanisms, and robust governance reforms to ensure efficient execution.

Keywords: Government Expenditure, Poverty, Inequality, Disaggregated Analysis, Nigeria.

1.1 Background to the Study

Nigeria, Africa's largest economy and most populous nation, presents a stark development paradox characterized by robust macroeconomic figures coexisting with profound and pervasive socio-economic deprivation. Despite possessing vast natural resources, particularly hydrocarbons, and having recorded an estimated average Gross Domestic Product (GDP) growth of 2.4% between 2020 and 2023 (World Bank, 2024), the benefits of economic activity remain narrowly concentrated. The National Bureau of Statistics (NBS, 2022) reported that 63% of Nigerians (approximately 133 million people) are multidimensionally poor, suffering deprivations in education, health, and living standards. Monetary poverty is equally severe, with 40.1% of the population living below the national poverty line of 137,430 Naira per year (NBS, 2020). Concurrently, inequality persists at alarming levels; Nigeria's Gini coefficient was estimated at 35.1 in 2022 (World Bank, 2024), with significant disparities entrenched along geographical and rural-urban divides. The North-West and North-East geopolitical zones exhibit poverty headcount rates exceeding 70%, dramatically higher than the South-West's approximately 30% (NBS, 2020). This landscape of entrenched poverty and high inequality not only represents a humanitarian crisis but also poses a fundamental threat to the nation's social cohesion, political stability, and sustainable development.

In response to these challenges, successive Nigerian governments have deployed fiscal policy, particularly through budgetary allocations, as a primary instrument for socio-economic transformation. Annual federal budgets have grown substantially, with the 2024 appropriation bill reaching 27.5 trillion Naira (approx. \$34.5 billion) (Federal Ministry of Finance, Budget and National Planning, 2023). Historically, a significant portion of this expenditure has been directed towards sectors linked to human development and pro-poor growth. For instance, the 2021 budget allocated 7.9% to education and 4.5% to health, while the 2024 budget proposed 7.9% and 5.5% to these sectors, respectively (BudgIT, 2023). However, these allocations consistently fall short of international benchmarks, such as the UNESCO recommendation of 15-20% of the budget for education and the Abuja Declaration target of 15% for health. Moreover, recurrent expenditure covering salaries, overheads, and debt servicing often dominates, consuming 61% of the 2023 budget and crowding out capital expenditure crucial for long-term infrastructure and productivity gains (Central Bank of Nigeria [CBN], 2023).

The persistent socio-economic malaise despite substantial fiscal outlays raises critical questions about the efficacy, efficiency, and equity of public spending. Aggregate analysis of total government expenditure provides limited insight, as it masks the differential impacts of various spending components. Emerging literature suggests that the composition of spending is as critical as its volume. For example, spending on education and health is widely theorized to reduce poverty and inequality by enhancing human capital and labour productivity (Ogunjobi, 2022). Conversely, disproportionate spending on general administration or non-productive sectors may have negligible or even negative distributional effects by diverting resources from pro-poor investments (Adeniyi & Egwakhe, 2021). The debate extends to the type of expenditure: while capital spending on infrastructure (roads, power, water) can stimulate economic opportunities and access to markets, well-targeted recurrent spending on social safety nets, like the National Social Investment Programme (NSIP), can provide immediate consumption support to the most vulnerable (Olurounbi, 2023).

1.2 Statement of the Problem

Nigeria's socio-economic landscape is defined by a profound and persistent paradox: significant government fiscal outlays coexist with deteriorating living conditions for a majority of its citizens. Despite allocating trillions of Naira annually through federal and state budgets, with the proposed 2024 Federal budget reaching ₦27.5 trillion (Federal Ministry of Finance, Budget and National Planning, 2023), the nation continues to grapple with some of the world's most severe poverty and inequality metrics. Recent data indicate that 63% of Nigerians (approximately 133 million people) live in multidimensional poverty (National Bureau of Statistics [NBS], 2022), while monetary poverty affects 40.1% of the population (NBS, 2020). Concurrently, inequality remains stark, with the wealthiest 20% of households accounting for nearly 50% of total consumption, compared to the poorest 20% consuming less than 5% (World Bank, 2022). This entrenched deprivation occurs amidst substantial public expenditure, raising a critical, unresolved question: Why has increased government spending consistently failed to translate into commensurate and equitable improvements in the welfare of the Nigerian populace?

The core of this problem lies not necessarily in the aggregate volume of spending, but in its structure, efficiency, and targeting. A predominant focus on aggregate fiscal analysis within

both policy circles and academic research has obscured a more detailed understanding of how specific expenditure components perform. For instance, while the 2023 budget allocated ₦1.79 trillion to education and ₦1.17 trillion to health (BudgIT, 2022), outcomes in these sectors remain dismal. Nigeria accounts for 20% of the world's out-of-school children, with over 10.2 million primary school-aged children not in classrooms (UNICEF, 2022), and has one of the world's highest maternal mortality rates at 512 deaths per 100,000 live births (World Health Organization, 2023). This suggests a severe disconnect between budgetary allocations and on-the-ground impact, potentially driven by the composition of spending. A significant portion of these sectoral budgets is consumed by recurrent expenditure, primarily salaries and overheads, which may sustain systems but do not necessarily expand access or improve quality. In contrast, capital expenditure, critical for building new schools, hospitals, and infrastructure, is often underfunded, delayed, or misappropriated (Okafor & Ezeiofor, 2021). The problem, therefore, is the lack of empirical clarity on which type of spending recurrent versus capital, or within specific sectors like agriculture, social protection, or infrastructure yields the highest marginal returns in poverty reduction and inequality mitigation.

The regional and demographic disparity in the impact of government spending exacerbates national inequality. Poverty is not uniformly distributed; it is heavily concentrated in the North-West and North-East regions, where over 70% of the population is multidimensionally poor, compared to approximately 30% in the South-West (NBS, 2022). This geographical skew raises the problem of whether national expenditure is effectively channeled to these high-need areas or if allocation formulas and implementation failures perpetuate regional deprivation. Studies such as that by Ichoku et al. (2022) highlight how intergovernmental fiscal transfers often fail to correct for these disparities, sometimes exacerbating them. The problem is compounded by a lack of rigorous, disaggregated analysis that can trace a specific Naira spent on, for example, agricultural subsidies in Kebbi State versus urban road construction in Lagos, and its differential effect on local poverty and inequality indices. Without this level of analysis, policymaking remains a blunt instrument, unable to tailor fiscal interventions to address the specific drivers of poverty in different contexts.

This knowledge gap has direct and severe consequences for policy formulation and Nigeria's developmental trajectory. In an era of severe fiscal constraints, marked by rising public

debt servicing, which consumed 96% of federal government revenue in 2022 (CBN, 2023), the opportunity cost of misallocated spending is extraordinarily high. Every Naira allocated to an ineffective or inefficient budget line is a Naira denied from a potentially transformative intervention. The current approach fosters a cycle of poorly targeted spending, weak outcomes, and persistent socio-economic crisis, which in turn undermines public trust, fuels instability, and hampers long-term investment and growth (Adeniyi & Egwakhe, 2021).

Therefore, the central problem this research addresses is the critical absence of a comprehensive, disaggregated empirical analysis that can deconstruct Nigerian government expenditure into its core functional and economic components to precisely evaluate their differential and combined effects on both poverty and inequality. This problem manifests in continued inefficient budget allocations, widening regional disparities, and the sustained suffering of millions of Nigerians despite substantial fiscal efforts. Without resolving this diagnostic problem, Nigeria's fiscal policy will remain inadequately informed, its pro-poor spending will continue to underperform, and its national aspirations for inclusive development, as outlined in the Nigeria Agenda 2050 and the Sustainable Development Goals (SDGs), will remain persistently out of reach.

1.3 Research Questions

Based on the issues raised above, the following research questions have been generated to guide the study:

- i. To what extent has the public expenditure on economic services affected poverty in Nigeria?
- ii. To what extent has the public expenditure on economic services affected inequality in Nigeria?
- iii. What is the effect of public expenditure on Agricultural and water resources on poverty in Nigeria?
- iv. What is the effect of public expenditure on Agricultural and water resources on inequality in Nigeria?
- v. What is the effect of public expenditure on transport and communication on poverty in Nigeria?

- vi. What is the effect of public expenditure on transport and communication on inequality in Nigeria?

1.4 Objective of the study

The broad objective of the study is to examine the impact of disaggregated government expenditure on poverty and inequality in Nigeria. The specific objectives are below;

- i. To estimate the impact of public expenditure on economic services on poverty in Nigeria.
- ii. To determine the impact of public expenditure on economic services on inequality in Nigeria.
- iii. To estimate the effect of government expenditure on agricultural and water resources on poverty in Nigeria?
- iv. To analyze the effect of government expenditure on agricultural and water resources on inequality in Nigeria?
- v. To examine the impact of government expenditure on transport and communication on poverty in Nigeria?
- vi. To ascertain the impact of government expenditure on transport and communication on inequality in Nigeria?

1.5 Hypotheses of the study

The following hypotheses stated in the null form will be tested in the study;

H0₁ Government expenditure on economic services has no significant effect on poverty in Nigeria.

H0₂ Government expenditure on economic services has no significant effect on inequality in Nigeria.

H0₃ Government expenditure on agricultural and water resources has no significant impact on poverty in Nigeria.

H0₄ Government expenditure on agricultural and water resources has no significant impact on inequality in Nigeria.

H0₅ Public expenditure on transport and communication has no significant impact on poverty in Nigeria.

H0₆ Public expenditure on transport and communication has no significant impact on inequality in Nigeria.

1.6 Significance of the study

This research holds significant theoretical, practical, and policy relevance for addressing Nigeria's core developmental challenges. Theoretically, it contributes to the literature on public finance and development economics by moving beyond aggregate analysis to provide a nuanced, evidence-based framework that links specific expenditure components to distinct socio-economic outcomes. By evaluating the differential impacts of recurrent versus capital spending and across key sectors like education, health, and infrastructure, the study will test and potentially refine established theories on fiscal policy's role in poverty alleviation and inequality reduction within a complex federal context like Nigeria's.

Practically, the study offers actionable intelligence for policymakers and budgetary authorities. In an era of severe fiscal constraints, where debt servicing consumes a disproportionate share of government revenue, identifying which budgetary allocations yield the highest pro-poor and pro-equity returns is critical. The findings will provide a rigorous, evidence-based hierarchy of expenditure effectiveness, enabling the government to optimize limited public resources. For instance, the analysis may reveal whether increased capital spending on rural agricultural infrastructure delivers greater poverty reduction per Naira spent than equivalent allocations to urban social safety nets, thereby informing smarter, more targeted budgeting.

Furthermore, the study has substantial social significance. By pinpointing the expenditure pathways that most effectively reduce deprivation and narrow economic gaps, the research directly supports the achievement of national goals like the Nigeria Agenda 2050 and international commitments such as the Sustainable Development Goals (SDGs), specifically SDG 1 (No Poverty) and SDG 10 (Reduced Inequalities). Ultimately, this knowledge can help break the cycle of inefficient spending and persistent socio-economic crisis, fostering greater social cohesion, political stability, and inclusive economic growth for all Nigerians. The insights will also be

valuable to civil society organizations, development partners, and researchers advocating for and designing more effective fiscal interventions.

1.7 Scope of the study

The study is based on secondary data obtained from the Central bank of Nigeria's statistical annual bulletin, World Development Indicators (WDI), National Bureau of Statistics annual abstract, and the World Inequality database from 1981 – 2025 for Nigeria.

1.8 Limitation of the study

This study will examine the disaggregated impact of government expenditure on inequality and poverty in Nigeria in terms of government expenditure on administration, government expenditure on social and community services, per capita income, government expenditure on economic activities, and government transfers.

2.1 Conceptual Issues

2.1.1 Government Expenditure in Nigeria

Government expenditure reflects the policy choices of governments. Once governments have decided upon which goods and services to provide with the quantity and quality in which they will be produced, public expenditures represent the cost of carrying out these policies. The activities of government arise from ideological reasons and also from government attempts to deal with allocation and distributional inefficiencies brought about by market failure. The government therefore, provides public and quasi-public goods along with transfer payments in response to the collective demands of the people. The growth of government over time has been connected with astounding increases in public expenditure. This should be seen in relation to increases in other economic magnitudes such as the rise in the general price level, the growth in gross national product, and changes in the structure and size of the population.

The structure of Nigerian public expenditure can be broadly categorized into capital and recurrent expenditure. Recurrent expenditure is referred to as government expenses on administration such as wages, salaries, interest on loans maintenance, etc. Whereas expenses on projects like roads, airports, education, telecommunication, and electricity generation are captured under capital expenditure.

Public expenditure in Nigeria is further classified into expenditures in government functions such as administration, social and community services, economic services, and transfers. Expenditure on administration includes general administration, defence, internal security, and national assembly. Expenditures on social and community services include those on education, health, and other social and community services. Expenditures on economic services include those on agriculture, construction, transport and communication, and other economic services. Government transfers include public debt servicing, pensions, gratuities, contingencies/subventions, etc. (Central Bank of Nigeria, 2020). Except for government transfers, other classes or categories of government expenditure have capital and recurrent components.

2.1.2 Poverty in Nigeria

According to the UNDP (2007), there are three perspectives to the definition of poverty. The first is income perspectives which views poverty as a situation where a person is poor if the income level is below the defined poverty line. Second, is the basic need which views poverty as deprivation of material requirements for minimal acceptable fulfillment of human needs, including foods, basic health, education, essential service, employment and participation. The third is lack of capacity which represent the absence some basic capabilities to function. A person lacking the opportunity to achieve some minimal acceptable levels of these functioning. This view was complemented by the 2020 World Development report.

Poverty in Nigeria is a profound, multidimensional crisis that defines the lived reality for a majority of its citizens. It extends far beyond simple income deprivation, encompassing severe deficiencies in access to education, healthcare, sanitation, and housing. According to the most comprehensive national survey, a staggering 63% of Nigerians (approximately 133 million people) were classified as multidimensionally poor in 2022 (National Bureau of Statistics [NBS], 2022). This metric, which considers overlapping deprivations in health, education, and living standards, reveals a more alarming picture than monetary measures alone. In monetary terms, 40.1% of the population lived below the national poverty line of 137,430 Naira (roughly \$361) per year as of 2019, the latest official income poverty estimate (NBS, 2020). The depth and severity of poverty are intense, with the average poor person living on incomes significantly below the poverty line,

indicating that escaping deprivation requires substantial, not marginal, improvements in resources (World Bank, 2022).

2.1.3 Inequality

In any context, the concept of inequality refers always to comparability between elements. The comparison is usually based on specific characteristics which can be measured using adequate indexes or indicators. Thus, the fact is reduced to comparisons between quantities and inequality will relate to differences in these quantities. In these terms, inequality seems to be a straightforward concept which, as Cowell (2005) states "obviously" suggests a departure from the simple idea of equality, this is, the fact that two or more quantities are the same size.

Economic inequalities are most obviously shown by people's different positions within the economic distribution- income, pay, and wealth. However, people's economic positions are also related to other characteristics, such as whether or not they have a disability, their ethnic background, or whether they are a man or a woman. Inequality refers to disparities and discrepancies in areas such as income, wealth, education, health, nutrition, space, politics, and social identity (Haughton & Khandker, 2009). While inequality is concerned with the full distribution of wellbeing; poverty is focused on the lower end of the distribution only those who fall below the poverty line (McKay, 2002). Inequality can be viewed as inequality of what, inequality of whom, and inequality over what time horizon (McKay, 2002).

Inequalities are 'fundamentally about relational disparities, denial of fair and equivalent enjoyment of rights, and the persistence of arbitrary discrepancies in the worth, status, dignity and freedoms of different people' (UNICEF & UN Women, 2013). Inequality can exist in a variety of different spheres such as income, wealth, education, health, and nutrition.

2.2 Theoretical Review

2.2.1 Keynesian Theory

The Keynesian theory of public expenditure, originating from John Maynard Keynes's work during the Great Depression, provides a foundational macro-economic rationale for active government fiscal intervention. Keynes challenged classical notions of self-correcting markets, arguing that aggregate demand the total spending in an economy determines output and

employment. During recessions or periods of underemployment, private sector demand often falls short, leading to persistent economic slumps. Keynesian theory posits that government spending can act as a counter-cyclical tool to stimulate aggregate demand, create jobs, and lift economic growth (Banga et al., 2021). This is particularly relevant for developing economies like Nigeria, where private investment is frequently constrained by infrastructural deficits and uncertainty.

2.2.2 Wagner's Law

Wagner's Law, formulated by German economist Adolph Wagner in the late 19th century, posits a long-run tendency for the share of public expenditure in national income to increase as an economy develops. This is not merely a descriptive observation but a theoretical proposition about the income elasticity of demand for public services. Wagner argued that industrialization and urbanization accompanying economic progress create complex societal needs such as expanded administrative services, law enforcement, education, and social welfare that only the state can adequately address (Babatunde et al., 2020). Consequently, government spending grows both absolutely and as a proportion of Gross Domestic Product (GDP), a phenomenon often termed "the expanding state."

2.2.3 Human Capital Theory

Human Capital Theory, pioneered by economists such as Schultz (1961) and Becker (1964), posits that investments in people through education, healthcare, and skills training enhance their productivity and earning capacity, much like physical capital investments improve machinery. This theory provides a crucial micro-foundation for analyzing how specific categories of government expenditure can directly influence long-term poverty and inequality. It argues that public spending on health and education is not merely consumption but a strategic investment that yields high social and economic returns by improving labour quality, fostering innovation, and driving sustainable economic growth (Ogunjobi, 2022).

2.2.4 Public Choice Theory

Public Choice Theory, developed by scholars such as James Buchanan and Gordon Tullock, applies the principles of economic analysis to political decision-making. It departs from the normative view of government as a benevolent social planner, instead modeling politicians,

bureaucrats, and voters as rational, self-interested actors seeking to maximize their own utility, be it votes, budgets, power, or personal gain. This theoretical framework provides a critical lens for understanding why government expenditure in Nigeria may deviate from optimal, pro-poor allocations despite evident social needs.

2.3. Empirical Review

Chude, Nkiru, Chude, and Anah (2019) examined the relationship between government expenditure, economic growth, and poverty reduction in Nigeria using time series data over the period 1980-2013. Employing time series econometric techniques such as unit root tests, bound test co-integration approach, and error correction techniques within an ARDL framework yields more robust estimates. It is found that government spending affects economic growth positively and significantly by increasing real private investment and fixed capital accumulation which increases capital accumulation reduces current account deficit and external debt burden and improves education/skills of the households by improving human capital. The study suggested policies the role of government should be extended to ensure the magnitude and the quality of private investment are as high as possible.

Ebere and Osundina (2014) investigated the impact of disaggregated expenditure on infrastructure on poverty reduction. The Vector Autoregressive Model was adopted. The result showed a long-run relationship between government expenditure on infrastructure and poverty reduction in Nigeria. The result indicated further that government expenditure on building and construction has a positive and significant impact on poverty reduction. Government expenditure on health has an insignificant and negative impact on poverty reduction.

Oriavwote and Ukawe (2018) investigated the relevance of government expenditure on poverty reduction in Nigeria. The study covered the period between 1980 and 2016. The ECM model and co-integration models of the OLS as well as the granger causality techniques were used to analyze the data. The result of the parsimonious ECM indicates that though the one-period lag on government expenditure on health has a significant and positive impact on the per capita income, it has low elasticity. The result indicates further that government expenditure on education has a significant and positive impact on the per capita income. The result indicates further that government expenditure on building and construction has a significant and positive impact on the

per capita income, the elasticity is however very low. The granger causality test result indicates no causality between government expenditure on health and education. A bicausal relationship however exists between government expenditure on education and per capita income. The result shows no causality between government expenditure on building and construction and the per capita income. The result recommends amongst others an increment and proper monitoring of government spending which could be enhanced through a public-private partnership

Akinyemi, Loto, and Enilolobo Oluwafemi (2018) empirically examined poverty and inequality in Nigeria concerning its implications for inclusive growth from 1980 to 2013. Uni-directional causality was found from Poverty (POV) to Growth Rate of Gross Domestic Product (GGDP); Government Expenditure on Health (GEXPH) to Inequality (measured by PCI); Government Expenditure on Education (GEXPED) to PCI; Unemployment (UNEMP) to GEXPH and UNEMP to PCI, no causality was found between POV and PCI (Inequality). Johansen's co-integration test revealed evidence of long-run co-integration. GGDP and GEXPH impact positively on PCI (inequality) but negatively on POV, while PCI impacts negatively on POV. Thus, as the economy grows, the public spends more money to improve health services, inequality rises and poverty reduces. GEXPED impacts negatively on PCI (inequality) but positively on POV contrary to theory, a situation where more education failed to lead to quality jobs and improved standard of living. The study therefore recommends policies and strategies aimed at improving access to quality health facilities and educational opportunities with increased job-creating opportunities should be pursued.

Ogbeide and Agu (2015) examined the nature and direction of causality between poverty and income inequality in Nigeria from 1980 to 2010. Using the Granger causality approach, the authors found a bi-directional causality between inequality and poverty for the period. The study, therefore, concluded that policy measures should not be taken in isolation thus a policy aimed at reducing inequality should be supported by policies aimed at reducing poverty. Bakare (2012) in an examination of the topic measured income inequality in Nigeria: using the Lorenz curve and the Gini coefficient approach, the ordinary least square regression technique was employed to analyze the determinants of inequality in Nigeria. The results indicated a depressing level of income inequality in the Nigerian economy. There is a high divergence in income distribution with a rising value of literacy rates indicating the need for public authorities to enact and implement

policies targeted at the improvement in the well-being of the poor people and those that provide employment and improve a lot of low-paid labourers.

Kolawole, Omobitan, and Yaqub (2015) examined the phenomenon of rising growth in the presence of chronic poverty and inequality in Nigeria from 1980 to 2012 using ordinary least square regression (OLS) estimates and the Error Correction Mechanism (ECM). The study revealed that the gross domestic product growth rate leads to an increasing value of inequality but a declining value of poverty in the economy. It was therefore recommended that apart from promoting economic growth, increased and effective public spending on education and healthcare equipment with programmes primarily focused on non-privileged such as children, women, and the poor in general should be pursued for poverty and inequality to reduce in the economy.

Akin-Olagunju and Omonoma (2014) examined sources of income, inequality, and poverty among rural households in Ibadan, Oyo state Nigeria, based on data collected from 120 households in rural parts of Ibadan, using a multi-stage sampling procedure found that agriculture and non-farm self-employment are inequality-increasing and thus recommended the need to incorporate non-farm self-employment income sources into developmental efforts of public by empowering rural dwellers financially and ensuring equitable access to agricultural credits and other farm inputs.

Ogujiuba (2014) examined poverty incidence and reduction strategies in Nigeria: challenges of meeting 2015 Millenium Development Goals (MDGs) targeted and specifically reviewed poverty reduction efforts of the public from 2007 to 2012. The study identified lack of necessary infrastructure, poor targeting of recipients in previous poverty reduction measures and corruption among others as pertinent issues that could orchestrate the MDGs to a stalemate. And therefore, suggests that new poverty reduction strategies for Nigeria should be anchored on inclusive growth fundamentals, redistributive public expenditure, increasing rate of productive job creation, and broad-based sectoral growth. The study failed to give a clear meaning of inclusive growth as well as the implications for poverty and inequality and its overall impact on the economy. This study hopes to provide a solution to these.

Sade (2015) examined the efficacy of government expenditure on health and health improving sectors on the key macroeconomic problems of Poverty and Income Inequality. Noting the endogenous link among the three (government expenditure on health, poverty, and income

inequality,) the Granger causality test was conducted to ascertain the causality float among them. Results first showed that the series were integrated of order one and that government expenditure on health Granger causes poverty and inequality. Unemployment also was found to Granger cause poverty. This showed that there is a predictable line of causation among these variables. The Johansen cointegration test results showed, from the trace and maximum Eigen statistics, that there were six and four cointegrating equations respectively. The Vector Error Correction Model satisfied the a-priori expectations and was statistically significant at a 5% level. Among others, it was found that in the immediate past year government expenditure on health impacted negatively on poverty and was statistically significant at a 5% level. Government expenditure on education and agriculture also had a negative impact on poverty but was not statistically significant at 5% level. Recommendation, among others, was that, to enhance the poverty alleviation programme, policy efforts should be intensified on health, and health-related issues such as education and agriculture.

Ewetan and Urhie (2021) conducted a study titled *"Disaggregated government spending and poverty reduction in Nigeria."* Utilizing time-series data from 1981 to 2019, they employed the Autoregressive Distributed Lag (ARDL) cointegration technique to analyze the effects of disaggregated spending on economic growth and poverty. Their scope focused on federal government expenditure categorised into administrative, social services, economic services, and transfers. The results indicated that while total government spending had an insignificant effect on poverty, disaggregation revealed that spending on social and economic services had a significant poverty-reducing impact in the long run. The study concluded that the composition of spending matters profoundly, with capital expenditures in productive sectors being more effective than recurrent administrative outlays. They recommended a deliberate reallocation of the budget towards social infrastructure and human capital development to combat poverty.

Bakare and Olubokun (2021) explored *"Health care expenditure and poverty reduction in Nigeria."* Their research used annual data from 1990 to 2019 and applied the Fully Modified Ordinary Least Squares (FMOLS) method. The scope was specifically on health sector expenditure, analyzing its direct elasticity with poverty headcount. They found a significant negative relationship between government health spending and poverty levels, confirming health investment as a potent tool for poverty alleviation. The conclusion emphasized that improved

health outcomes enhance labour productivity and reduce household medical impoverishment. Their key recommendation was for Nigeria to meet the Abuja Declaration target of allocating at least 15% of its annual budget to the health sector to amplify these effects.

Ogunjobi (2022) in the study *"Human capital expenditure and poverty dynamics in Nigeria: A vector autoregressive (VAR) approach"* examined data from 1981 to 2020. Using Vector Autoregression and Granger causality tests, the research assessed the dynamic interplay between combined education and health spending and multidimensional poverty. The results established a long-run significant relationship and unidirectional causality from human capital expenditure to poverty reduction. The study concluded that sustained investment in education and health is critical for breaking intergenerational poverty cycles. It recommended that fiscal policy prioritize these sectors and address leakages to ensure actual capital formation.

Adeniyi and Egwakhe (2021) in their work *"Public expenditure structure and economic growth in Nigeria: A disaggregated approach"* analyzed data from 1986 to 2018 using the ARDL model. Their scope covered expenditure on education, health, agriculture, defence, and transport/communication. While focused on growth, their findings on distribution were insightful. They found that agricultural and transport spending had significant positive effects on growth, whereas education and health expenditures did not show significant short-run impacts. They concluded that for growth to be poverty-reducing, it must be labour-intensive and inclusive. Their recommendation was for complementary policies that ensure growth from sectors like agriculture translates into jobs and income for the poor.

Ichoku, Nwosu, and Oji (2022) addressed spatial dimensions in *"Fiscal federalism and regional inequality in Nigeria: An empirical analysis."* Using state-level panel data from 1999 to 2019 and Gini coefficient decomposition, they assessed how intergovernmental transfers and subnational spending affect regional disparities. The methodology included fixed effects and instrumental variable regressions. The results revealed that the current fiscal transfer system has not mitigated, and may have exacerbated, regional inequalities, with richer states often benefiting more from certain allocations. The study concluded that the design of Nigeria's fiscal federation is a key driver of spatial inequality. It recommended a review of the revenue allocation formula to

incorporate clearer equity-based criteria, such as poverty incidence and human development deficits.

Okafor and Ezejiofor (2021) focused on implementation in *"Budget implementation and capital project delivery in Nigeria: Issues and challenges."* This qualitative and quantitative study analyzed budget performance reports from 2015 to 2020. Their scope was the execution rate of capital budgets, crucial for long-term inequality reduction. They found chronically low capital implementation rates (averaging below 40%), with projects often abandoned or plagued by cost inflation. The conclusion was that poor execution severely dilutes the potential impact of pro-poor allocations. They recommended strengthening oversight institutions like the National Assembly and the Office of the Auditor-General, alongside the adoption of rigorous project management frameworks.

Olurounbi (2023), in a policy analysis titled *"Nigeria's social investment programme faces scrutiny over impact,"* provided an empirical evaluation of a key anti-poverty expenditure. The scope was the National Social Investment Programme (NSIP), using government disbursement data and independent survey findings from 2016-2022. The analysis, referencing auditor-general reports, found significant implementation gaps, including inclusion errors and payment delays, which limited the programme's efficacy. It concluded that while well-conceived, the programme's execution weakened its poverty and inequality impact. The recommendation was for a robust, technology-driven beneficiary registry and stronger community-based monitoring to improve targeting and delivery.

Ajide and Raheem (2022) conducted a study titled *"Public spending and inclusive growth in Nigeria: The role of governance"* used dynamic panel estimations with data from 1996 to 2019. Their scope uniquely incorporated a governance interaction term. They found that the effect of social spending on inclusive growth (a proxy for inequality reduction) is contingent on the quality of governance. Where governance is weak, increased spending had minimal or even negative distributional effects. The study concluded that improving governance effectiveness and control of corruption is a prerequisite for pro-poor fiscal policy. It recommended integrating stringent governance conditionalities into budgetary processes to ensure expenditure efficiency and equity.

2.4 Gaps in the Existing Literature

A review of the empirical literature reveals significant contributions to understanding the linkages between government expenditure, poverty, and inequality in Nigeria. However, critical theoretical and methodological gaps persist, which this study seeks to address. While studies like Ewetan and Urhie (2021) and Ogunjobi (2022) have convincingly demonstrated the importance of a disaggregated approach, their analyses largely remain confined to macro-level, national time-series data. This approach, as seen in works by Chude et al. (2019) and Sade (2015), often masks sub-national heterogeneities. As Ichoku et al. (2022) have highlighted, Nigeria's profound regional inequalities mean that national averages provide an incomplete picture. A major gap, therefore, is the scarcity of studies that integrate both temporal and spatial panel data at the state level to model how the same category of expenditure yields differential outcomes across Nigeria's diverse geopolitical zones, thereby failing to offer region-specific fiscal policy guidance.

Furthermore, a predominant focus in the literature, from Oriavwote and Ukawe (2018) to Bakare and Olubokun (2021), has been on the unidirectional impact of expenditure on poverty or growth. There is a notable paucity of studies that simultaneously model the dual, and often distinct, outcomes of poverty alleviation and inequality reduction within a single analytical framework. While Ogbeide and Agu (2015) established a bi-directional causality between poverty and inequality, and Kolawole et al. (2015) noted that growth can reduce poverty while increasing inequality, few empirical models have been constructed to test which disaggregated expenditures effectively reduce poverty headcount *and* narrow the Gini coefficient. This is a crucial omission, as policies effective for one objective may be neutral or even detrimental to the other, a nuance approach lacking in studies like Adeniyi and Egwakhe (2021).

Methodologically, many studies, including those by Ebere and Osundina (2014) and Akinyemi et al. (2018), rely on older data series ending before 2020, thus not capturing the profound socio-economic shocks of the COVID-19 pandemic, the full implementation and challenges of the National Social Investment Programme (NSIP) as noted by Olurounbi (2023), and the recent partial removal of fuel subsidies. Consequently, findings from these studies may not reflect current fiscal dynamics and their distributional impacts. Additionally, while several studies identify implementation failure as a problem, as Okafor and Ezejiofor (2021) detail few empirically incorporate governance and institutional quality variables as moderating factors in their econometric models. The work of Ajide and Raheem (2022) is a notable exception, but its

broader "inclusive growth" proxy for inequality requires more direct testing with standard inequality metrics.

Finally, the literature exhibits a gap in theoretical integration. Most studies are anchored in single paradigms, such as Keynesian demand stimulation or Human Capital theory. There is a lack of a synthesized theoretical framework that incorporates the efficiency rationale of Human Capital Theory, the political economy constraints highlighted by Public Choice Theory (explaining the misallocation and corruption noted by Ogujiuba, 2014), and the spatial equity concerns inherent in fiscal federalism. This study aims to bridge these gaps by employing recent time series data, jointly modelling poverty and inequality as distinct dependent variables, and applying a more holistic theoretical lens to provide nuanced, actionable policy insights for equitable development in Nigeria.

This study hence seeks to fill the gap in the literature by disaggregating government expenditure in terms of other economic services, agriculture and water resources, transportation and telecommunication in Nigeria from the period of 1981 to 2025. There has been an inconclusive debate on the impact of public expenditure, which can be growth-enhancing or growth-depleting although the financing of such expenditure provides essential infrastructural facilities-including transport, electricity, telecommunications, water and sanitation, waste disposal, education, and health can be growth retarding or growth-promoting providing conflicting conclusions from different theoretical fronts. A further study on the disaggregated impact of government expenditure (other economic services, agriculture and water resources, transportation and telecommunication) therefore is essential to ascertain the degree of impact of these components of government spending in Nigeria especially since poverty and inequality continue to be lingering issues in the Nigerian economic space.

3.2 Theoretical Framework

The theoretical framework of this study is based on the Keynesian Macro economic framework which assumes that any increase in government expenditure has a positive and significant impact on economic growth and by implication, the level of poverty. Keynesian economics is a theory that says the government should increase demand to boost growth. Keynesians believe that consumer demand is the primary driving force in an economy. As a result, the theory supports the expansionary fiscal policy. Its main tools are government spending on

infrastructure, unemployment benefits, and education. This form the bedrock of the causes of poverty and inequality in any given society.

The British economist John Maynard Keynes developed this theory in the 1930s. The Great Depression had defied all prior attempts to end it. Keynes described his premise in “The General Theory of Employment, Interest, and Money.” First, it argued that government spending was a critical factor driving aggregate demand. That meant an increase in spending would increase demand. Second, Keynes argued that government spending was necessary to maintain full employment. Keynes advocated deficit spending during the contractionary phase of the business cycle which can be characterized by poverty and inequality gap. In the last century, policymakers have used it even during the expansionary phase. The U.S for instance employed fiscal expansionary policy to step out of the economic recession that rocked the global economy which came to be known as the global melt-down.

3.3 Model Specification

This research adapts the Otiwu, Chukwu and Okere (2018) methodology which examines the disaggregated impact of government expenditure on economic growth modifying it to impact on our dependent variable; Poverty and inequality respectively. In their study, government expenditure is disaggregated in terms of government expenditure on administration, government expenditure on social and community services, government expenditure on economic activities and government transfers.

The models are hence specified as follows;

$$POV = f(GXTCN, GXECO, GXAGRIC, PGRT) \quad (3.1)$$

$$INEQ = f(GXTCN, GXECO, GXAGRIC, PGRT) \quad (3.2)$$

The model is therefore specified econometrically, transforming some parameters by taking the log of large variables to avoid the problem of large coefficient variables in the model.

$$POV_t = \beta_0 + \beta_1 \ln GXTCN_t + \beta_2 \ln GXECO_t + \beta_3 \ln GXAGRIC + \beta_4 PGRT_t + \varepsilon_t \quad (3.3)$$

$$INEQ_t = \beta_0 + \beta_1 \ln GXTCN_t + \beta_2 \ln GXECO_t + \beta_3 \ln GXAGRIC + \beta_4 PGRT_t + \varepsilon_t \quad (3.4)$$

From the above, the Longrun Autoregressive Distributed lag scheme can be specified as follows;

$$POV_t = \beta_0 + \beta_1 \sum POV_{t-i} + \alpha_2 \sum_i^n \lambda_{it} - 1 + \varepsilon_{t-1} \quad (3.5)$$

$$INEQ_t = \beta_0 + \beta_1 \sum INEQ_{t-i} + \alpha_2 \sum_i^n \lambda_{it} - 1 + \varepsilon_{t-1} \quad (3.6)$$

The short run Error Correction Model can be specified as thus;

$$\begin{aligned} (POV_t) = & \beta_0 + \beta_1(POV_{t-i}) + \beta_2 \ln(GXTCN_{t-i}) + \beta_3 \ln(GXECO_{t-i}) + \beta_4 \ln(GXAGRIC_{t-i}) + \beta_5(PGRT_{t-i}) \\ & + \sum_{i=1}^{\rho} \phi_1 \Delta(POV_{t-i}) + \sum_{i=1}^{\rho} \phi_2 \Delta \ln(GXTCN_{t-i}) + \sum_{i=1}^{\rho} \phi_3 \Delta \ln(GXECO_{t-i}) + \sum_{i=1}^{\rho} \phi_4 \\ & \Delta \ln(GXAGRIC_{t-i}) + \sum_{i=1}^{\rho} \phi_5 \Delta \ln(GXPGRT_{t-i}) + \varepsilon_{t-1} \end{aligned} \quad (3.7)$$

$$\begin{aligned} (INEQ_t) = & \beta_0 + \beta_1(INEQ_{t-i}) + \beta_2 \ln(GXTCN_{t-i}) + \beta_3 \ln(GXECO_{t-i}) + \beta_4 \ln(GXAGRIC_{t-i}) + \beta_5(PGRT_{t-i}) \\ & + \sum_{i=1}^{\rho} \phi_1 \Delta(INEQ_{t-i}) + \sum_{i=1}^{\rho} \phi_2 \Delta \ln(GXTCN_{t-i}) + \sum_{i=1}^{\rho} \phi_3 \Delta \ln(GXECO_{t-i}) + \sum_{i=1}^{\rho} \phi_4 \\ & \Delta \ln(GXAGRIC_{t-i}) + \sum_{i=1}^{\rho} \phi_5 \Delta \ln(GXPGRT_{t-i}) + \varepsilon_{t-i} \end{aligned} \quad (3.8)$$

Where:

Ln= Natural Logarithm

Δ = Difference operator

3.4 Description of Variables

Variable	Description	Measurement	Expected sign	Source of Data
POV	Poverty	Households and NPISH final consumption expenditure		CBN Statistical Bulletin

INEQ	Inequality	Income Inequality (pre-tax top 10% share)		World inequality database
GXTCN	Government Expenditure on Transport & Communication	GXTCN (Total)	Negative (-)	CBN Statistical Bulletin
GXECO	Government Expenditure on other economic services	GXECO (Total)	Negative (-)	CBN Statistical Bulletin
GXAGRIC	Government Expenditure on Agriculture and water resources	GXAGRIC (Total)	Negative (-)	CBN Statistical Bulletin
PGRT	Population Growth	Population Growth (annual %)	Positive (+)	World Development indicators

4.1 Descriptive Statistics

Descriptive statistics are used to describe the basic features of the data in a study. They provide simple summaries about the variables and the measures. The descriptive statistics of the study are presented below;

Table 4.1.1 Descriptive Statistics

	POV	PGRT	GINI	GXECO	GXAGRC	GXTCN
Mean	4219.768	2.579291	52.88049	18.86371	17.44602	22.75435
Median	3578.642	2.579301	54.90000	12.87658	16.93917	18.82110
Maximum	6684.218	2.709830	63.30000	72.83550	31.65000	87.76134
Minimum	2898.474	2.488792	35.10000	5.388008	8.916667	-0.794167
Std. Dev.	1309.560	0.066178	8.172828	16.67880	4.810706	17.80710
Skewness	0.836511	0.191972	-1.086374	1.862372	0.319264	1.529136
Kurtosis	2.094196	1.775908	2.949794	5.320569	3.645661	5.951703
Jarque-Bera	10.32859	2.811599	8.069063	93.68522	6.127299	28.94897
Probability	0.005717	0.245171	0.017694	0.000000	0.046717	0.000001

Sum	173010.5	105.7509	2168.100	2370.682	848.4720	673.6675
Sum Sq. Dev.	68597919	0.175184	2671.804	320514.6	23775.57	16915.28
Observations	44	44	44	44	44	44

Source: *Author's computation from Eviews 10 output, (2025)*

Table 4.1.1 showed descriptive statistics of the variables used in this study. Poverty (POV) in Nigeria based on household final consumption expenditure ranged from 6684.218 billion naira to 2898.474 billion naira with an average of 4219.768 billion naira, in the period 1981 to 2025. The standard deviation of the country's household final consumption expenditure was 1309.56. The coefficient of variation (standard deviation divided by mean) value was 0.31. This suggested that there was a low variation in Nigeria's household final consumption expenditure over the period. The skewness value of 0.84, and kurtosis value of 2.09, indicated that poverty proxied by household final consumption expenditure was skewed to the right and platykurtic, respectively. The Jarque-Bera value of 10.3 was not significant at the 5 percent level. This meant that poverty proxied by household final consumption expenditure was not normally distributed.

Moreover, Nigeria's population growth rate (PGRT) in the period 1981 to 2025 was 2.58 percent. The annual population growth rate ranged from 2.48 to 2.7 percent with a standard deviation of 0.066172. Thus, the coefficient of variation value of 0.025 implied that there was a low variation in the population growth rate of Nigeria in the period considered. The population growth rate's skewness statistic value was 0.19. The kurtosis value of 1.78 showed that the data was platykurtic (flat-curved) in nature. The Jarque-Bera statistic value of 2.81 was significant at the 5 percent level suggesting that annual population growth rate data were normally distributed.

The average value of income inequality level (INEQ) proxied by Gini co-efficient for the period under review is 52.88049. The maximum and minimum values are 63.30000 and 35.10000 respectively. The skewness value of -1.09 suggests a negative skewness (long left tail) with a kurtosis value of 2.95 meaning that the distribution is mesokurtic. Thus, the coefficient of variation value of 0.155. The Jarque-Bera statistic value of 8.07 is significant at the 5 percent level suggesting that annual income level data is normally distributed.

For government expenditure on other economic activities (GXECO) for the period under review, the minimum and maximum values are 5.388008 and 72.83550 respectively. The skewness value of 1.86 suggests a positive skewness (long right tail) with a kurtosis value of 5.32 meaning that the distribution is leptokurtic. Thus, the coefficient of variation value of 0.88. The Jarque-Bera statistic value of 93.68 is not significant at the 5 percent level suggesting that data is not normally distributed.

Government expenditure on agriculture and water resources (GXAGRC) for the period under review, the minimum and maximum values are 8.916667 and 31.6500 respectively. The skewness value of 0.32 suggests a normal skewness with a kurtosis value of 3.65 meaning that the distribution is mesokurtic. Thus, the coefficient of variation value of 0.27. The Jarque-Bera statistic value of 6.12 is not significant at the 5 percent level suggesting that data is not normally distributed.

For government expenditure on transport and communication (GXTCN) for the period under review, the minimum and maximum values are -0.794167 and 87.76134 respectively. The skewness value of 1.53 suggests a positive skewness (long right tail) with a kurtosis value of 5.95 meaning that the distribution is leptokurtic. Thus, the coefficient of variation value of 0.78. The Jarque-Bera statistic value of 28.9 is not significant at the 5 percent level suggesting that data is not normally distributed.

4.1.3 Correlation Analyses

Correlation Analysis is a statistical method that is used to establish if there is a relationship between two variables/datasets, and how strong that relationship may be. The Pearson Correlation analysis was used to ascertain the relationship between the variables and is shown in the table below.

Table 4.1.2 Correlation Matrix

	GXECO	GXAGRC	GINI	PGRT	POV	GXTCN
GXECO	1.000000					
GXAGRC	0.623124	1.000000				
GINI	-0.120603	0.227048	1.000000			
PGRT	0.405534	0.251766	-0.208717	1.000000		
POV	0.674272	0.853329	0.384206	0.284759	1.000000	
GXTCN	0.721944	0.669341	-0.238513	0.319009	0.558505	1.000000

Source: *Author's computation from Eviews 10 output, (2025)*

Table 4.1.2 provided Pearson's correlation matrix of the model. The results showed that the pairwise Pearson's correlation coefficients ranged from -0.12 to 0.85. This indicated that all the pairwise Pearson's correlation coefficients were less than 1. The implication is to expect an absence of multicollinearity among repressors' in the estimated regression model. This supports the assumption of no multicollinearity in the estimated poverty and inequality results.

4.1.4 Unit Root Test

A time series has stationarity if a shift in time does not cause a change in the shape of the distribution; unit roots are one cause for non-stationarity. In the study, the Augmented Dickey Fulley Test (ADF) was used to confirm the presence of unit root in the series. The results are shown below;

Table 4.1.3 Unit root Test

Variable	Lags	ADF Stats	5% critical Value	Order of Integration	Remarks
POV	9	-5.255940	-2.960411	I(0)	stationary
PGRT	8	-4.067630	-2.957110	I(0)	stationary
D(GXECO)	1	-6.750520	-2.941145	I(I)	stationary
D(GINI)	1	-9.076313	-2.941145	I(I)	stationary
D(GXTCN)	4	-4.536905	-2.948404	I(I)	stationary
D(GXAGRC)	1	-7.042938	-2.941145	I(I)	stationary

Source: *Author's computation from Eviews 10 output, (2025)*

Note: *“D” denotes the first difference*

Table 4.1.3 displayed the Augmented Dickey-Fuller (ADF) unit root test statistics of the variables at levels. All the variables had ADF test statistical values which are greater in absolute terms, than their corresponding critical values at the 5 percent level. Poverty level and annual population growth rate were stationary at levels [I(0)]. However, government expenditure in agriculture and water resources, government expenditure on transportation and

telecommunication, government expenditure on other economic activities and income inequality level are integrated of order one $[I(1)]$ stationary after first difference.

4.2 Presentation and Discussion of Empirical Results

4.2.1 ARDL Model

In ARDL modeling, it is first imperative to determine the optimal lag and to find out whether co-integration exists using the bound test approach. In the determination of the optimal lag, the optimal lag length from an auxiliary VAR model was analyzed for this purpose. Bound testing as an extension of ARDL modeling uses F-statistics to test the significance of the lagged levels of the variables in a univariate error correction system when it is unclear if the data-generating process underlying a time series is a trend or first difference stationary. This test is carried out on ARDL estimates to prove that co-integrating relationship exists in the model or not.

4.2.1.1 Optimal Lag Length Selection for ARDL Models

Table 4.2.1.1 provides the results of the optimal lag selection adequate for the estimation of the ARDL models using different selection criteria. The selection criteria were sequentially modified LR test statistic (each test at a 5% level), final prediction error (FPE), Akaike information criterion (AIC), Schwarz information criterion (SIC), and Hannan-Quinn information criterion (HQ).

Table 4.2.1.1 Optimal Lag Length Criteria for Poverty

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-912.8772	NA	6.58e+14	48.30933	48.52480	48.38599
1	-733.4392	302.2113	1.97e+11	40.18101	41.47384	40.64099
2	-698.4368	49.74029	1.25e+11	39.65457	42.02476	40.49786
3	-608.6817	103.9270*	5.02e+09*	36.24641*	39.69396*	37.47302*

Source: Author's computation using Eviews 10, (2025)

Table 4.2.1.2 shows the results of the different lag selection criteria considered in this study. The optimal lag length is 3. This is based on the recommendations of the Akaike info criterion (AIC). All the various criteria unanimously comply with the lag length.

Table 4.2.1.2 Optimal Lag Length Criteria for Inequality

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-301.2704	NA	6.890700	16.11950	16.33497	16.19616
1	-160.9749	236.2873	0.016167	10.05131	11.34414	10.51129
2	-115.5197	64.59424	0.005920	8.974719	11.34491	9.818015
3	-45.55407	81.01280*	0.000674*	6.608109*	10.05566*	7.834721*

Source: Author's computation using Eviews 10, (2025)

Table 4.2.1.2 shows the results of the different lag selection criteria considered in this study. The optimal lag length is 3. This is based on the recommendations of the Akaike info criterion (AIC). All the various criteria unanimously comply to the lag length.

N/B: the lag 3 variables were found to be insignificant during the process of estimation for poverty while lag 2 & 3 variables were found to be insignificant during the process of estimation for inequality. Hence, there were dropped.

4.2.2 Bounds Test for Co-integration

The results of the Bounds test for co-integration which establishes the long-run relationship among the variables are given below;

Table 4.2.2.1 Bounds Test for Co-integration for Poverty

F-Bounds Test		Null Hypothesis: No Level relationship		
Test Statistics	Value	significance	I(0)	I(1)
			Asymptotic: n=1000	
F-Statistic	6.358271	10%	2.2	3.09
K	4	5%	2.56	3.49
		2.5%	2.88	3.87
		1%	3.29	4.37

Source: Author's computation using Eviews 10, (2025)

From table 4.2.2.1 above, the F-statistics of 6.36 is higher than the critical values of 2.56 and 3.49 which represent the 5% significance level for the upper and lower bound respectively.

So, therefore, we reject the null hypothesis of no levels of co-integrating relationship, hence, there is a long-run relationship between the endogenous and the exogenous variables in the model.

Table 4.2.2.2 Bounds Test for Co-integration for Inequality (GINI)

F-Bounds Test		Null Hypothesis: No Level relationship		
Test Statistics	Value	significance	I(0)	I(1)
			Asymptotic: n=1000	
F-Statistic	7.527086	10%	2.2	3.09
K	4	5%	2.56	3.49
		2.5%	2.88	3.87
		1%	3.29	4.37

Source: *Author's computation using Eviews 10, (2025)*

From table 4.2.2.3 above, the F-statistics of 7.53 is higher than the critical values of 2.56 and 3.49 which represent the 5% significance level for the upper and lower bound respectively. So, therefore, we reject the null hypothesis of no levels of co-integrating relationship, hence, there is a long-run relationship between the endogenous and the exogenous variables in the model.

4.2.3 Short Run Error Correction Model (ECM)

The standard method of obtaining the short-run dynamics of a model described by an error correction model is the use of the autoregressive lag (ARDL) model. To establish the long-run relationship between the dependent variable and the independent variables in the model. Having established the existence of co-integration based on the results of the bounds test, we proceed to estimate the error correction modeling (ECM). The significance of the ECM in the model is to indicate how disequilibrium in the dependent variable can be adjusted in the short-run. The results of the ECM model are presented in the table below:

Table 4.2.3.1 Short Run Error Correction Regression (ECM) for Poverty [D(LNPOV)]

Case 2: Restricted Constant and No Trend (ARDL: 3,2,0,1,0)

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
D(LNPOV(-1))	-0.300534	0.150677	-1.994559	0.0563
D(LNPOV(-2))	-0.188424	0.129282	-1.457467	0.1565
D(PGRT)	5.857646	2.267058	2.583809	0.0155
D(PGRT(-1))	-8.679971	2.088034	-4.157006	0.0003
D(GXAGRC)	-0.005191	0.001661	-3.125600	0.0042

D(GXECO)	9.879153	18.96274	0.520977	0.0065
D(GXTCN)	-0.679494	0.133591	-5.086358	0.0001
CointEq(-1)	-0.297750	0.003387	-6.724163	0.0000
R-squared	0.653611	Mean dependent var		0.212805
Adjusted R-squared	0.623863	S.D. dependent var		0.199164
S.E. of regression	0.143085	Akaike info criterion		-0.906823
Sum squared resid	0.655142	Schwarz criterion		-0.648256
Log likelihood	23.22963	Hannan-Quinn criter.		-0.814827
Durbin-Watson stat	1.891835	F-stats (P-value)	6.358271	0.0000

Source: *Author's computation using Eviews 10, (2025)*

The estimated result of the model is presented in Table 4.2.3.1 ARDL (3, 2, 0, 1,0) process was modest and had a good fit. The coefficient of the error correction term (CointEq(-1)) was negative (-0.29775) and significant at the 1 percent level. This met with apriori expectations and indicated that about 29.8 percent of the deviations of the model from its equilibrium value in the previous period was corrected in the current period. The model, therefore, converges to its equilibrium value over time. The R-squared value of 0.653611 shows that about 65.4 percent of the fluctuations in changes in poverty level was explained by the explanatory variables in the short-run equation. And the adjusted R-squared indicates that about 62.4 percent was explained when adjustment was made for the degree of freedom given by the adjusted R-square. The F-statistic value of 6.36 was significant at the 1 percent level. This suggest that there was a significant relationship between poverty and all the explanatory variables taken together in the short run. The Durbin-Watson statistic value of 1.89 indicated that there was no threat of autocorrelation among the residual terms of the model.

The estimated coefficient of the one-year lag of the first difference of the log form of the poverty level was negative and not significant at the 5 percent level. The coefficient value of -0.3 showed that on average, a 1 unit change in the poverty level in the previous year led to a -0.3 decrease in the poverty level in the current year. This indicates a negative and insignificant correlation between previous and current levels of poverty levels. The current level of poverty is therefore not affected by its previous levels or period lags as shown in the result.

The first difference in the population growth rate [D(PGRT)] had a positive impact on the poverty level which supports the apriori sign expectation, this impact was found to be significant

at the 5 percent level of significance. The estimated value of its coefficient implies that a 1 unit increase in population growth rate translates to a 5.86 unit increase in poverty level. Overall, it means that a positive and significant relationship was held between the population growth rate and poverty level in Nigeria. However, the population growth rate in the previous year has a negative and significant impact on the current poverty level at a 1 percent level of significance with an estimated value of its coefficient -8.68 which implies a 1 unit increase in population growth rate in the previous year translating to a 8.68 unit decrease in poverty level.

Moreover, government expenditure on agriculture and water resources [D(GXAGRC)] in the first difference had a negative estimated coefficient significant at the 5 percent level. The estimated value of -0.005 shows that on average, a 1 unit increase in government expenditure on agriculture and water resources led to a 0.005 unit decrease in poverty level during the period 1981 to 2021. This suggests that a significant and negative relationship was observed between government expenditure on agriculture and water resources and poverty level in the period considered.

Government expenditure on other economic activities [D(GXECO)] in its first difference had a positive estimated coefficient significant at the 1 percent level. The sign expectation of the variable was correctly held. The estimated value of 9.88 indicated that holding all factors constant, a unit increase in government expenditure on other economic activities would translate to a 9.88 unit increase in poverty level during the period. This showed that a significant and positive relationship was held between government expenditure on other economic activities and the poverty level in Nigeria within the period.

Lastly, Government expenditure on transport and communication [D(GXTCN)] had an estimated negative coefficient that was significant at the 1 percent level. The coefficient value of -0.68 showed that holding all other factors constant, a unit increase in government expenditure on transport and communication would inform a 0.68 unit decrease in poverty level. This suggested that a direct relationship existed between government expenditure on transport and communication and poverty level in accordance with the apriori expectation during the period under study.

Table 4.2.3.2 Short Run Error Correction Regression (ECM) for Inequality D(GINI)

Case 2: Restricted Constant and No Trend (ARDL: 2,2,1,0,2)

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
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D(GINI(-1))	0.310808	0.148671	2.090582	0.0473
D(GXAGRC)	0.504084	0.121272	4.156650	0.0008
D(GXAGRC(-1))	-0.001226	0.000426	-2.879921	0.0115
D(GXECO)	-0.001838	0.000414	-4.436001	0.0005
D(GXECO(-1))	-0.002249	0.000695	-3.233882	0.0056
D(PGRT)	0.000743	0.000579	1.282209	0.2192
D(PGRT(-1))	-0.006066	0.008597	-0.705571	0.4872
D(GXTCN)	-5.60E-05	1.20E-05	-4.681548	0.0001
D(GXTCN(-1))	1.06E-05	2.10E-05	0.503813	0.6190
CointEq(-1)	-1.506378	0.205898	-7.316143	0.0000
R-squared	0.771753	Mean dependent var		-0.243590
Adjusted R-squared	0.728957	S.D. dependent var		11.60886
S.E. of regression	6.043782	Akaike info criterion		6.597086
Sum squared resid	1168.874	Schwarz criterion		6.895674
Log likelihood	-121.6432	Hannan-Quinn criter.		6.704216
Durbin-Watson stat	1.865416	F-stats (P-value)	1.643683	0.0050

Source: *Authors computation using Eviews 10, (2025)*

The estimated result of the model for the inequality gap is presented in Table 4.2.3.2 ARDL (2, 2, 1, 0,2) process was modest and had a good fit. The coefficient of the error correction term (CointEq(-1)) was negative (-1.506378) and significant at the 1 percent level. The (-1.5) ecm means that the system is converging to equilibrium on the long run and that the estimated model is stable i.e the system's correction mechanism is oscillatory, in other words, the speed of adjustment fluctuates forward before settling to equilibrium and it also indicates that the sizable speed of adjustment of disequilibrium correction before reaching long run steady state position. This met with apriori expectations and indicated that about 20.6 percent of the deviations of the model from its equilibrium value in the previous period were corrected in the current period. The model, therefore, converges to its equilibrium value over time even though the speed of adjustment is not quite impressive. The R-squared value of 0.771753 showed that about 77.2 percent of the fluctuations in changes in the inequality level were explained by the explanatory variables in the short-run equation. And the adjusted R-squared indicates that about 72.9 percent was explained when adjustment was made for the degree of freedom given by the adjusted R-square. The F-statistics value of 1.643683 was significant at the 1 percent level. This suggested that there was a

significant relationship between inequality and all explanatory variables taken together in the short run. The Durbin-Watson statistic value of 1.87 indicated that there was no threat of autocorrelation among the residual terms of the model.

The estimated coefficient of the one-year lag of the first difference of the inequality [D(GINI)] level was positive and significant at the 5 percent level. The coefficient value of 0.31 showed that on average, a 1 unit change in the poverty level in the previous year led to a 0.31 increase in the inequality gap in the current year. This indicated a positive and significant correlation between previous and current levels of poverty levels. The current level of inequality gap is therefore is influenced by its previous levels or period lags as shown in the result.

The first difference of the government expenditure on Agriculture and water resources [D(GXAGRC)] had a positive impact on the inequality gap which does not support the apriori sign expectation. However, this impact was found to be significant at the 1 percent level of significance. The estimated value of its coefficient implies that a 1 unit increase in government expenditure on Agriculture and water resources would translate to a 0.50 unit increase in the inequality gap. Overall, it meant that a positive and significant relationship was held between the government expenditure on Agriculture and water resources and the inequality gap in Nigeria. However, the government expenditure on Agriculture and water resources in the previous year has a negative and significant impact on the current inequality gap at a 5 percent level of significance with an estimated value of its coefficient -0.001226 implies a 1 unit decrease in the previous year would translate to an 0.001226 unit decrease in the inequality gap for the previous year.

Moreover, government expenditure on other economic activities [D(GXECO)] in the first difference had a negative estimated coefficient that was observed to be significant at the 1 percent level. The estimated value of -0.001838 showed that on average, a 1 unit increase in government expenditure on other economic activities led to a 0.001838 unit decrease in the inequality gap during the period 1981 to 2025. This suggested that a significant and negative relationship was observed between government expenditure on other economic activities and the inequality in the period considered in accordance with the apriori expectation. However, government expenditure on other economic activities and the inequality in the previous year, was observed to have also a negative estimated coefficient that was observed to be significant at the 1 percent level in accordance with the apriori expectation. The estimated value of -0.002249 showed that on average,

a 1 unit increase in government expenditure on other economic activities led to a 0.002249 unit decrease in the inequality gap during the period under review.

The population growth rate [D(PGRT)] in its first difference had a positive estimated coefficient that was observed to be insignificant. The sign expectation of the variable was correctly held. The estimated value of 0.000743 indicated that holding all factors constant, a unit increase in population growth rate would translate to a 0.000743 unit increase in the inequality gap during the period. This showed that a non-significant and positive relationship was held between the population growth rate and the income inequality gap in Nigeria within the period. However, in the previous year, the population growth rate was observed to have a negative impact on the current inequality gap. It had a negative estimated coefficient of -0.006066 that was observed to be insignificant.

Lastly, Government expenditure on transport and communication [D(GXTCN)] had an estimated negative coefficient that was significant at the 1 percent level. The coefficient value of -5.60 showed that holding all other factors constant, a unit increase in government expenditure on transport and communication would inform a 5.60 unit decrease in the inequality gap. This suggested that a direct relationship existed between government expenditure on transport and communication and poverty level in accordance with the apriori expectation during the period under study. It was also observed that in the previous year, government expenditure on transport and communication had a positive estimated coefficient of 1.06 which was observed to be insignificant.

4.2.4 Estimated Coefficient of the Long Run Model

Having analyzed the short-run dynamics of the Error Correction Model, we proceed to estimate the associated long-run model using the ARDL approach. The results are presented below.

Table 4.2.4.1 Long Run Model for Poverty [D(LNPOV)]

Case 2: Restricted Constant and No Trend (ARDL: 3,2,0,1,0)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
PGRT	5.857646	2.767549	2.116547	0.0437
GXECO	0.006285	0.020077	0.313040	0.7567
GXAGRC	-0.005191	0.002037	-2.548039	0.0168

GXTCN	0.004577	0.002104	2.175265	0.0385
C	-3.621302	59.32750	-0.061039	0.9518

Source: *Authors' computation using Eviews 10, (2025)*

The estimated long run result of the model presented in Table 4.2.3.1 . The estimated coefficient of population growth rate had a positive and significant at the 5 percent level of significance. The estimated value of its coefficient implies a 1 unit increase in population growth rate would translate to a 5.86 unit increase in the poverty level of the current year. Overall, it meant that a positive and significant relationship was held between the population growth rate and the current poverty level in Nigeria.

Moreover, government expenditure on other economic activities (GXECO) had a negative estimated coefficient that was not significant at the 5 percent level. The estimated value of -0.000143 showed that on average, a 1 unit increase in government expenditure on other economic activities led to a 0.0000143 unit increase in the poverty level during the period 1981 to 2025. This suggested that a non-significant and negative relationship was held between government expenditure on other economic activities and poverty level in the period considered.

Government expenditure on Agriculture and water resources in had a negative estimated coefficient significant at the 5 percent level. The sign expectation of the variable was correctly held. The estimated value of -0.01 indicated that holding all factors constant, a unit increase in the government expenditure on Agriculture and water resources would translate to a 0.01 unit decrease in the poverty level in the current year during the period. This showed that a significant and negative relationship was held between Government expenditure on Agriculture and water resources in the previous year and the poverty level in the current year in Nigeria within the period.

However, Government expenditure on Transport and communication had a positive coefficient significant at the 5 percent level. This, however, contradicts the apriori expectation from literature. The coefficient value of 0.005 implied that ceteris paribus, a unit increase in government expenditure on Agriculture and water resources led to a 0.005 unit increase in the current poverty level. Therefore, a significant positive relationship existed between Government expenditure on transport and communication and the current poverty level in Nigeria.

Table 4.2.4.2 Long Run Model for Inequality [D(INEQ)] (GINI)

Case 2: Restricted Constant and No Trend (ARDL: 2,2,1,0,2)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GXECO	0.053934	0.018180	-2.966680	0.0062
GXAGRC	-6.70E-06	9.65E-06	0.693871	0.4928
TCN	-4.05E-05	1.12E-05	-3.627555	0.0010
PGRT	-1.965046	15.37853	-0.127779	0.8993
C	61.05300	39.33524	1.552120	0.1323

Source: Authors computation using *Eviews 10*, (2025)

The estimated result of the Long run model presented in Table 4.2.3.2. The government expenditure on other economic activities (GXECO) had a positive estimated coefficient that was significant at the 1 percent level. The estimated coefficient value of 0.05 showed that on average, a 1 unit increase in government expenditure on other economic activities led to a 0.05 unit increase in the inequality level during the period 1981 to 2025. This suggested that a significant and positive relationship was held between government expenditure on other economic activities and inequality level in the period considered.

Government expenditure on Agriculture and water resources had a negative estimated coefficient that was significant at 5 percent level. The sign expectation of the variable was not correctly held. The estimated value of 6.7 indicates that holding all factors constant, a unit increase in the government expenditure on Agriculture and water resources in the would translate to 6.7 unit decrease in the inequality level in the current year during the period. This shows that a significant and negative relationship was held between Government expenditure on Agriculture and water resources in the previous year and inequality level in the current year in Nigeria within the period.

However, Government expenditure on Transport and communication had a negative coefficient significant at the 1 percent level. The coefficient value of -4.05 implied that *ceteris paribus*, a unit increase in government expenditure on transport and communication led to a 4.05 unit decrease in the current inequality level. Therefore, a significant negative relationship existed between Government expenditure on transport and communication and the current inequality level in Nigeria.

The population growth rate had a negative impact on the inequality level which contradicts the apriori sign expectation. However, this impact was found to be non-significant at the 5 percent level of significance. The estimated value of its coefficient implies a 1 unit increase in population growth rate would translate to a 1.9 unit decrease in the inequality level of the current year. Overall, it meant that a negative non-significant relationship was held between the population growth rate in the previous year and the current poverty level in Nigeria.

4.3 Post Diagnostic Test

Post-diagnostic tests were also conducted to ascertain the validity or otherwise of the estimated models. Such tests as the Breusch-Godfrey Lagrange Multiplier test for serial correlation, autoregressive conditional heteroscedasticity test, Jarque-Bera normality test, Ramsey's regression specification error test, and stability test were conducted. The results are presented below;

Table 4.3.1 Post estimation Test for Poverty

Test	F Stat	DF	Prob.
Breusch-Godfrey Serial Correlation LM Test	0.567240	(3,24)	0.6419
Heteroskedasticity Test: Breusch-Pagan-Godfrey	1.641059	(10,27)	0.1480
Ramsey RESET Test	0.022035	(1, 26)	0.8831
Jarque-Bera		0.253	0.88

Source: *Authors computation using Eviews 10, (2025)*

Table 4.3.1 contained the diagnostic results of estimation with Poverty as the dependent variable. The result showed that there was no threat of serial correlation in the estimated model since Breusch-Godfrey Serial Correlation LM Test F-statistic value of 0.567240 was not significant. There was also no heteroskedasticity problem in the estimated as Breusch-Pagan-Godfrey F-statistic value 1.641059 was not significant.

Furthermore, the estimated model was adequately specified judging from Ramsey's RESET F-statistic which was not significant in establishing the stability of the model. The error terms obtained from the model estimation were normally distributed. The conclusion was drawn from the Jarque-Bera (JB) statistics value of 0.881 which was statistically insignificant. It follows, therefore, that all the underlying assumptions of the regression analysis were not violated. Hence, the estimates from the model are reliable for decision-making.

Table 4.3.2 Post estimation Test for Inequality (GINI)

Test	F Stat	DF	Prob.
Breusch-Godfrey Serial Correlation LM Test	1.030991	(2,22)	0.3733
Heteroskedasticity Test: Breusch-Pagan-Godfrey	0.582496	(14,24)	0.8526
Ramsey RESET Test	4.221483	(1, 23)	0.0514
Jarque-Bera		1.256	0.534

Source: *Authors computation using Eviews 10, (2025)*

Table 4.3.1 contained the diagnostic results of estimation with inequality (GINI) as the dependent variable. The result showed that there was no threat of serial correlation in the estimated model since the Breusch-Godfrey Serial Correlation LM Test F-statistic value of 1.030991 was not significant. There was also no heteroskedasticity problem in the estimated as Breusch-Pagan-Godfrey F-statistic value 0.582496 was not significant.

Furthermore, the estimated model was adequately specified judging from Ramsey's RESET F-statistic which was not significant in establishing the stability of the model. The error terms obtained from the model estimation were normally distributed. The conclusion was drawn from the Jarque-Bera (JB) statistics value 1.255887 which was statistically insignificant. It follows, therefore, that all the underlying assumptions of the regression analysis were not violated. Hence, the estimates from the model are reliable for decision-making.

4.4 Test for Hypotheses

The null hypotheses stated earlier in this study were evaluated in this section. The evaluations were based on the results obtained and presented above.

H0₁: Government expenditure on other economic activities has no significant impact on poverty in Nigeria.

The estimated results shows that the impact of government expenditure on other economic activities on poverty was positive and significant at a 1 percent level in the short-run while it was observed to be insignificant in the long run at 5% percent level. The null hypothesis was therefore rejected in the short run but accepted against the alternative hypothesis in the long run, thus; government expenditure on other economic activities has a significant impact on poverty in the short run but is insignificant in the long run period in Nigeria.

H0₂: Government expenditure on other economic activities has no significant impact on inequality in Nigeria.

The estimated results showed that the impact of government expenditure on other economic activities on inequality was negative and significant at a 1 percent level in the short-run while it was observed to be positively significant in the long run at 1 percent level. The null hypothesis was therefore accepted in the short run but rejected against the alternative hypothesis in the long run, thus; government expenditure on other economic activities has no significant impact on inequality in the short run but is significant in the long run period.

H0₃: Government expenditure on agriculture and water resources has no significant impact on poverty in Nigeria.

From the results, government expenditure on agriculture and water resources had a negative but significant impact on poverty in both the short run at 1 percent and long run at 5 percent levels respectively during the period under study. The null hypothesis was therefore rejected.

H0₄: Government expenditure on agriculture and water resources has no significant impact on inequality in Nigeria.

Government expenditure on agriculture and water resources had a positive and significant at 1 percent impact on inequality in the short run and a negative but insignificant impact on long run at 5 percent level during the period under study. The null hypothesis was therefore rejected the null hypothesis on the short run and accepted the null hypothesis on the long run.

H0₅: Government expenditure on transport and communication has no significant impact on poverty in Nigeria.

The estimated results showed that government expenditure on transport and communication had a negative significance at a 1 percent level on poverty in the short-run and a negative significance in the long run at a 5 percent level. We, therefore, reject the null hypothesis for the alternative in both the short and long-run periods.

H0₆: Government expenditure on transport and communication has no significant impact on inequality in Nigeria.

The estimated results shows that government expenditure on transport and communication had a negative significance at a 1 percent level on inequality in both the short-run and long run. Hence, we reject the null hypothesis and accepted the alternative hypothesis.

4.5 Discussion of Findings

The empirical analysis reveals a complex and nuanced relationship between disaggregated government expenditure and Nigeria's twin challenges of poverty and inequality. A central finding is the confirmation that the composition of spending is paramount, as aggregate effects mask significant sectoral heterogeneities with critical policy implications.

The results robustly support the poverty-reducing efficacy of agricultural expenditure (GXAGRC) in both the short and long run. This aligns with Human Capital and pro-poor growth theories, as investments in agriculture directly enhance the productivity and income of the majority of Nigeria's poor, who reside in rural areas. However, a striking and counterintuitive finding emerges for inequality: short-run agricultural spending appears to *increase* the Gini coefficient. This may be explained by initial capture and implementation lags; early benefits from schemes like input subsidies or commercial loans may disproportionately accrue to wealthier, more commercially oriented farmers before trickling down, or may be geographically skewed. This underscores the critical need for improved targeting and pro-poor design within agricultural programmes to ensure they are inequality-neutral or reducing over time.

Conversely, expenditure on other economic activities (GXECO) presents a troubling paradox: it reduces inequality but *exacerbates* poverty. This category, often encompassing broad subsidies, administrative costs, and non-targeted industrial spending, may act as a regressive fiscal tool. It potentially funnels resources to established firms and urban sectors, creating wage disparities that narrow inequality among the formal sector workforce but fail to reach the informal, rural poor, thereby increasing the poverty headcount. This finding starkly illustrates the potential trade-off between equity and poverty eradication when spending is not meticulously targeted.

The most policy-salient result concerns transport and communication expenditure (GXTCN), which significantly reduces inequality in both time horizons. This strongly supports its role as a powerful equalizer by enhancing market access, reducing transaction costs, and

integrating marginalized regions into the formal economy. Its negative impact on poverty in the short run further reinforces its pro-poor potential. However, the contradictory long-run positive coefficient with poverty requires scrutiny, potentially pointing to maintenance failures, urban bias in infrastructure placement, or induced displacement that may benefit entrepreneurs at the expense of the poorest in the long term.

Finally, the significant positive impact of population growth (PGRT) on poverty reinforces Malthusian concerns, highlighting that economic and social investments are being outstripped by demographic pressures, diluting per capita benefits. This necessitates integrating population policy with fiscal planning. In conclusion, the findings decisively demonstrate that Nigeria's fiscal policy cannot be a blunt instrument; it must become a scalpel, strategically allocating to high-impact, well-designed programmes in agriculture and connective infrastructure while phasing out broad, untargeted economic expenditures that fail to serve the poorest.

4.6 Policy Implications

From the results of the Autoregressive distributed lag model (ARDL), the type of government expenditure that has significant impacts on reducing poverty and income inequality in Nigeria is agricultural and water resources expenditure, and transport and telecommunication expenditure. The empirical results from the Error Correction Models reveal critical insights that necessitate a recalibration of Nigeria's fiscal strategy to effectively combat poverty and inequality. The findings suggest that the impact of government expenditure is highly sector-specific and that achieving both poverty reduction and inequality mitigation requires a deliberate, dual-track approach.

The analysis clearly identifies agricultural expenditure (GXAGRC) as a uniquely effective tool for poverty reduction, showing a significant negative relationship in both the short and long run. Conversely, expenditure classified as "other economic activities" (GXECO) which often includes subsidies, administrative costs, and non-targeted industrial spending was found to exacerbate poverty. This necessitates a decisive policy shift. We recommend a substantial reallocation of budgetary resources from broad, often inefficient "other economic" allocations towards targeted, productivity-enhancing agricultural investments. This includes increased

funding for irrigation, extension services, high-yield seed subsidies, and post-harvest storage infrastructure to directly boost the incomes of the rural poor, who constitute the majority of Nigeria's impoverished population.

The results **for** transport and communication expenditure (GXTCN) are paramount for addressing inequality. It demonstrated a robust, significant negative impact on the Gini coefficient in both the short and long run, indicating its power as an equalizing force. Therefore, policy must prioritize capital investments in rural road networks, broadband internet, and public transportation systems. These investments enhance market access for marginalized producers, reduce transaction costs, and create spatial connectivity that bridges the urban-rural opportunity divide. This should be a cornerstone of any national inequality reduction strategy.

A singular focus on aggregate spending is insufficient. I propose a Two-Pillar Fiscal Framework. Pillar One (Poverty Reduction) mandates ring-fencing and progressively increasing the share of the capital budget for agriculture and rural development. Pillar Two (Inequality Reduction) requires a minimum allocation for pro-poor, connective infrastructure (transport/communication), with disbursement formulas weighted towards high-inequality states. The National Assembly and the Fiscal Responsibility Commission must be empowered to monitor compliance with these sectoral allocation targets.

The mixed and sometimes contradictory results (e.g., the positive long-run link between transport spending and poverty) likely stem from implementation failures, including corruption, poor targeting, and cost inflation, as highlighted in the literature review. Consequently, these sectoral reallocations must be accompanied by stringent governance reforms. We recommend the adoption of Geographic Information System (GIS)-tracked project monitoring and the mandatory publication of detailed, project-level budget performance reports to ensure allocated funds translate into tangible, quality assets that reach their intended beneficiaries.

Nigeria's fiscal policy must move beyond aggregate increases to embrace smart, evidence-based composition. By strategically reallocating resources to agriculture and connective infrastructure while fortifying implementation, the government can transform its budget into a precise instrument for achieving the dual goals of poverty eradication and equitable development.

5.1 Summary of findings

This study's findings resonate with and significantly extend the body of empirical literature on Nigeria's fiscal policy, while also reconciling apparent contradictions. The core conclusion that the composition of government spending is more critical than its aggregate volume, directly corroborates the work of Ewetan and Urhie (2021) and Ogunjobi (2022). Like these studies, we found that disaggregation reveals starkly different sectoral impacts, with expenditure on social and economic services (agriculture, transport) driving outcomes, while administrative or poorly targeted spending yields negligible or negative returns.

Specifically, the robust poverty-reducing effect of agricultural expenditure aligns with the conclusions of Bakare and Olubokun (2021) on health spending and Onifade et al. (2023) on agriculture, affirming the centrality of sector-specific human capital and productivity investments. However, our novel finding of its short-run inequality-increasing effect provides a crucial nuance, potentially explaining mixed results in earlier literature and highlighting the targeting flaws and elite capture often noted in studies of implementation like Okafor and Ezejiofor (2021). This adds empirical depth to the governance concerns raised by Ajide and Raheem (2022), showing how weak institutions can distort even theoretically pro-poor allocations.

Government expenditure on "other economic activities" exacerbates poverty but reduces inequality resolves a tension in the literature. It echoes Adeniyi and Egwakhe's (2021) finding of insignificant impacts from some social spending and aligns with Public Choice Theory predictions of spending driven by political, not welfare, objectives. This category likely functions as a regressive transfer, benefitting a connected few and narrowing inequality within a small elite while failing the poor, a dynamic consistent with the regressive benefit-incidence analysis in the World Bank (2022) Poverty Assessment.

The strong inequality-reducing power of transport and communication investment empirically validates the spatial integration hypotheses in Ichoku et al. (2022). It provides a clear fiscal mechanism to address the regional disparities they documented, offering a direct policy lever to counteract the inequality-perpetuating flaws in Nigeria's fiscal federalism. In synthesis, this research consolidates disparate findings from the empirical canon into a unified

framework, demonstrating that poverty and inequality are distinct policy targets requiring precision in both the *type* of expenditure and the *quality* of its governance and execution.

5.3 Recommendations

Based on the findings of the study, the following recommends were made:

1. **Enact Legislative Mandates for Pro-Poor Sectoral Allocations:** The Federal Government, in collaboration with the National Assembly, should enact a Fiscal Responsibility (Amendment) Act that legally mandates minimum budgetary allocations for high-impact, pro-poor sectors. Drawing from the findings, this act should stipulate that a minimum of 70% of the capital budget for the agriculture and water resources ministry must be allocated to direct, productivity-enhancing interventions such as smallholder farmer input schemes, extension services, and rural irrigation, rather than administrative overhead. Similarly, a fixed percentage of the infrastructure budget must be ring-fenced for rural and connective transport projects.
2. **Establish an Independent Public Expenditure Tracking and Efficiency Unit (PETEU):** To address the severe implementation gaps identified, a technically independent PETEU should be established under the National Assembly. This unit, powered by a Geographic Information System (GIS) and real-time project monitoring dashboard, would track capital projects from appropriation to completion, publishing quarterly performance scores for every federal ministry, department, and agency (MDA). This system would directly tackle the corruption and inefficiency documented by Okafor and Ezejiolor (2021), moving budget implementation from a black box to a transparent, accountable process.
3. **Implement a Two-Tiered, Geographically Weighted Agricultural Subsidy Programme:** To mitigate the short-run inequality-increasing effect of agricultural spending, the current blunt subsidy regime must be reformed. We recommend a Two-Tiered System: Tier 1 provides universal, but basic, input packages to all registered smallholders. Tier 2 offers enhanced packages (e.g., for irrigation, storage) exclusively to farmer cooperatives in Local Government Areas (LGAs) with poverty rates above the national average, as per NBS (2022) data. This targets additional resources to the poorest regions, ensuring agricultural spending is both poverty-reducing and inequality-neutral.

4. **Phase-Out and Redirect “Other Economic” Expenditures:** The study found that the broad category of "other economic activities" spending is poverty-exacerbating. A structured, five-year phase-out plan for untargeted fuel, electricity, and generalized corporate subsidies should be implemented. The resultant fiscal savings—estimated in trillions of Naira—must be transparently reallocated, with 50% directed to the enhanced agricultural Tier 2 programme and 50% to a scaled-up, targeted conditional cash transfer scheme.
5. **Prioritize Pro-Equity Infrastructure Through a Rural Access Index:** All future transport and communication capital budgets should be disbursed using a Rural Access Index (RAI) formula. This formula would weight allocations to states inversely to their existing road network density and broadband penetration, deliberately channeling resources to the most underserved, high-inequality regions identified by Ichoku et al. (2022). This ensures infrastructure spending fulfills its potential as the powerful inequality reducer evidenced in the results.
6. **Integrate Demographic Planning into Fiscal Framework Design:** Given the robust finding that population growth exacerbates poverty, fiscal policy cannot operate in a demographic vacuum. The National Economic Council (NEC) must integrate state-level demographic and poverty projections into the Medium-Term Expenditure Framework (MTEF). States with fertility rates significantly above the national average should receive enhanced conditional grants for primary healthcare and female education, explicitly linking federal transfers to investments in human capital and demographic transition.
7. **Strengthen Sub-National Fiscal Capacity with Equity Conditions:** The revenue allocation formula must be revised to incorporate explicit equity and poverty reduction criteria. Following the model of Ichoku et al. (2022), we recommend that a portion of the Federation Account Allocation Committee (FAAC) disbursements to states be made conditional on their performance against pro-poor metrics, such as their own agricultural spending match, primary school completion rates, and transparency in local project execution.
8. **Launch a National Social Register 2.0 with Biometric Authentication:** To improve the targeting of all social safety nets, the existing National Social Register must be upgraded to NSR 2.0. This system should integrate biometric authentication, verifiable means-testing through mobile money

transaction histories, and community-based validation to drastically reduce inclusion and exclusion errors, addressing the targeting failures noted by Olurounbi (2023).

9. Mandate “Poverty & Inequality Impact Assessments” for Major Budget Lines: Finally, all MDAs should be required to submit a Poverty and Inequality Impact Assessment (PIIA) for any proposed capital project exceeding ₦5 billion. This assessment, reviewed by the proposed PETEU, would force a rigorous justification of how each major expenditure will directly or indirectly reduce poverty and inequality, embedding the findings of this disaggregated analysis into the very heart of the budgetary process

5.4 Conclusion

This research set out to conduct a disaggregated analysis of how government spending affects poverty and inequality in Nigeria, moving beyond the limitations of aggregate fiscal analysis. The empirical findings provide compelling evidence that the composition and quality of public expenditure are decisive factors in determining socio-economic outcomes. The study confirms that while aggregate spending has grown, its impact has been diluted and often counterproductive due to misallocation, poor targeting, and weak governance. Crucially, the analysis reveals that poverty reduction and inequality mitigation are distinct policy objectives, each requiring a specific fiscal strategy; what alleviates one does not necessarily improve the other, and in some cases, may worsen it.

The results underscore the efficacy of sector-specific, productivity-enhancing investments. Expenditure on agriculture and water resources emerged as a potent tool for poverty alleviation, while investment in transport and communication infrastructure proved to be a powerful instrument for reducing inequality. Conversely, the category of "other economic activities" spending was found to be regressive, exacerbating poverty despite a superficial reduction in inequality metrics, highlighting the perils of untargeted fiscal interventions. These findings validate the core theoretical proposition that human capital and connective infrastructure are foundational for inclusive development.

Ultimately, this study concludes that Nigeria's fiscal policy requires a fundamental recalibration from a focus on spending volume to spending intelligence. Merely increasing budgetary allocations is insufficient without a concurrent, rigorous commitment to strategic sectoral prioritization, precision targeting, and institutional reforms that ensure efficient execution. The persistent crisis of poverty and inequality is not a failure of fiscal effort but of fiscal design and governance. Therefore, transforming public expenditure into a genuine engine of equitable growth demands that policymakers treat the budget not as a political instrument but as a precise, evidence-based tool for human development, aligning every Naira spent with the explicit goals of eradicating deprivation and bridging the profound divides that threaten national cohesion and sustainable progress.

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