DETERMINANT OF INCOME INEQUALITY IN NIGERIA

BY

Favour Otakophie JEMIFOR

MGS2104750

DEPARTMENT OF BANKING AND FINANCE

FACULTY OF MANAGEMENT SCIENCE

UNIVERSITY OF BENIN

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A PROJECT SUBMITTED TO THE DEPARTMENT OF BANKING AND FINAANCE, FACULTY OF MANAGEMENT SCIENCE, UNIVERSITY OF BENIN, BENIN CITY, NIGERIA. IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF BACHELOR OF SCIENCE (B.Sc) IN BANKING AND FINANCE

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DECLARATION

I, Favour Otakophie JEMIFOR, do hereby declare that this project is entirely my work and composition. The work embodied in this project has not been submitted by any other candidate for any degree and is not being currently submitted for any other degree. All references made to the work of other persons have been duly acknowledged.

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Favour Otakophie JEMIFOR Date

CERTIFICATION

We, the undersigned certify that this research work was submitted by Favour Otakophie JEMIFOR and it is hereby approved for the partial fulfillment of the requirement for the award of Bachelor of Science (B. Sc) degree in Banking and Finance, University of Benin, Benin city.

_____ _____

Dr. Mrs. L. O. Wallace Date

Project supervisor

_____ _____

Dr. O. Aigbovo Date

Project Co-ordinator

_____ _____

Dr. A.O Izekor Date

Head of Department

DEDICATION

This project is dedicated to Almighty God for his mercies and direction throughout the course of the project. It is also dedicated to my parents Mr. Dickson Jemifor and Mrs. Roselyn Jemifor for their financial support and prayers, also to my siblings.

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ABSTRACT

This study examined the determinants of income inequality in Nigeria for the period 1981 to 2023. For this purpose, four determinants of income inequality, namely government expenditure, access to credit, inflation rate and financial development were considered in this study using the ARDL bound testing procedure. The results showed that the four variables (government expenditure, access to credit, inflation rate and financial development) exert insignificant negative effect on income inequality in Nigeria in the short-run. We conclude that the selected variables are not key factors that influence income inequality in Nigeria within the studied period. To achieve more equitable distribution of income, the study recommends that implementation of policies that deepen the financial system and increase spending by .policy makers should focus on expenditure that affects the low income earners in order to reduce income inequality in Nigeria. Also, relaxing borrowing constraints is advocated so that the people with less income and small firms can make use of private credit, which helps them to increase their earning opportunities and creating additional employment for the local community. Furthermore, government should embark on expansionary fiscal and monetary policies to boost aggregate output as a measure to curb inflation and also implement policies that will deepen the financial system in Nigeria in order to improve income distribution and thus reduces inequality.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Income inequality has become one of the most pressing developmental challenges facing nations across the globe, particularly in developing countries like Nigeria. Despite its vast human and natural resources, Nigeria has continued to witness a lopsided pattern of wealth distribution, characterized by a significant gap between the rich and the poor. While a small fraction of the population enjoys economic privilege and affluence, a large proportion remains marginalized and excluded from meaningful economic participation. This phenomenon has not only persisted over time but has deepened in complexity and scope, undermining social cohesion and national development(Adeleke, 2021).

The issue of income inequality is not merely a statistical concern; it is a lived reality that reflects the imbalance in opportunities, access, and resource allocation. The Gini coefficient, a widely used measure of income distribution, has remained stubbornly high over the years, suggesting that economic growth has not translated into equitable development. According to the World Bank (2022), Nigeria's income inequality levels continue to exceed 40%, a threshold that indicates severe inequality. This is despite periods of moderate to strong economic growth, pointing to the paradox of growth without inclusion.One of the critical contributors to the persistence of inequality in

Nigeria is the historical and structural imbalance in the country's economic development. The dominance of the oil sector, combined with weak diversification of the economy, has created a narrow base of wealth accumulation. Oil revenues, which should serve as a foundation for social investment and redistribution, have often been mismanaged or inequitably allocated. The centralization of resources and decision-making has resulted in regional disparities and underdevelopment in many parts of the country, especially in rural areas (Olayemi, 2020). Consequently, the economic landscape favors a select few who are politically and economically connected, while the majority struggle to access basic services such as education, healthcare, and decent employment.

Income inequality in Nigeria is intricately tied to the limitations of public policy and governance. Government spending, which is a primary tool for economic redistribution in modern states, is frequently hampered by inefficiencies, lack of transparency, and corruption. Public expenditures are often concentrated in sectors or regions that serve elite interests, with limited investment in infrastructure or social services that directly benefit the poor. As Okonkwo (2021) notes, without targeted and accountable fiscal planning, public funds may inadvertently reinforce existing inequalities rather than mitigate them.

Another dimension of the inequality challenge is the limited access to economic empowerment mechanisms for disadvantaged populations. Access to capital, financial services, and entrepreneurial support remains a significant barrier for many Nigerians,

particularly those in rural communities and informal sectors. The formal financial system in Nigeria has not fully integrated these populations, creating a dual economy where wealth generation is concentrated in the hands of those with privileged access to credit, information, and markets. Adegbite and Machethe (2021) argue that this exclusion perpetuates a cycle of poverty, where individuals and households lack the tools to improve their income and quality of life.

Moreover, inflation and macroeconomic instability have had a profound impact on the real incomes of low- and middle-income Nigerians. Inflation erodes the purchasing power of wages and savings, disproportionately affecting those with fixed incomes or limited investment options. Unlike wealthier groups who can shield their wealth through diversified assets or foreign exchange hedges, the economically vulnerable face deteriorating living standards and limited resilience to price shocks. Uche and Nwachukwu (2020) highlight that inflation has a regressive effect, deepening inequality by widening the consumption and savings gap between social classes.

The structure of Nigeria's financial system also plays a critical role in shaping inequality outcomes. Financial development, while generally associated with economic growth, does not automatically lead to equitable income distribution. In Nigeria, the benefits of financial deepening—such as the expansion of banking networks, mobile money platforms, and capital markets—have often bypassed the poor due to low literacy levels, lack of trust, and infrastructural challenges. As noted by Ogbonna and Ebong (2019), the

elite capture of financial services results in capital concentration among the already wealthy, while the poor remain outside the formal financial system. Without deliberate efforts to enhance financial inclusion, financial development may inadvertently exacerbate inequality.

Cultural, demographic, and educational factors also intersect with economic variables to compound inequality. Nigeria's rapidly growing population, with a high dependency ratio and widespread youth unemployment, poses a serious challenge for equitable growth. The lack of quality education and skill development opportunities further restricts social mobility, making it difficult for individuals from low-income backgrounds to improve their circumstances. In addition, gender inequality and regional disparities contribute to uneven access to economic opportunities, compounding the problem of income concentration.

As income inequality continues to expand, its consequences extend beyond economic implications to affect political stability and social order. High inequality is often linked with increased crime rates, political unrest, and weakened trust in public institutions. The perception of unfairness and exclusion fosters resentment, undermines democratic governance, and threatens national unity. This is particularly troubling for a multi-ethnic and multi-religious country like Nigeria, where inequality can easily align with identity divisions, fueling conflict and disintegration.Efforts to address income inequality require a multi-dimensional and evidence-based approach. There is a need for inclusive policies

that focus on empowering marginalized groups, promoting equitable access to resources, and strengthening institutional frameworks that ensure accountability and transparency. Equally important is the need for research that deepens our understanding of the determinants of inequality in specific contexts. While global studies provide useful frameworks, local realities must be considered to design policies that are both effective and sustainable(Okoye, 2020).

This study is therefore crucial in contributing to the discourse on inequality in Nigeria by exploring the socio-economic and institutional dynamics that underpin unequal income distribution. Through empirical investigation, the research aims to shed light on the key forces that drive inequality and to offer practical recommendations for policy and reform. In doing so, it supports Nigeria's aspirations toward achieving inclusive development and fulfilling its commitments under international frameworks such as the United Nations Sustainable Development Goals (SDGs), particularly Goal 10 on reducing inequality within and among countries.

1.2 Statement of the Research Problem

Income inequality remains one of the most pressing socio-economic challenges confronting Nigeria. Despite various policies and reforms intended to promote equitable growth, the gap between the wealthy and the poor has continued to widen. While Nigeria has experienced periods of economic growth, the benefits have not been evenly distributed, and millions of citizens remain trapped in poverty. According to the National

Bureau of Statistics (2022), over 40% of Nigerians live below the poverty line, and the Gini coefficient has remained persistently high signaling deep-rooted inequality.

This persistent inequality raises questions about the effectiveness of government strategies aimed at inclusive development. Public spending often fails to prioritize critical sectors like education, health, and rural infrastructure, which are essential for reducing income disparities. In many cases, funds are mismanaged or diverted, weakening the impact of policies designed to address inequality (Okezie & Afolabi, 2020).

Another area of concern is the limited access to financial services for marginalized populations. While the financial sector has seen improvements, access remains largely skewed in favor of urban elites and established businesses. Small-scale entrepreneurs and rural dwellers often lack collateral or formal financial records, making it difficult to access loans or credit. This exclusion limits their ability to grow income, invest in human capital, or build resilience against economic shocks (Adegbite & Machethe, 2021).

In addition, macroeconomic instability—especially inflation—continues to erode the purchasing power of low-income households. Unlike wealthier groups who can hedge against inflation, poorer households experience a direct decline in their living standards, further widening the inequality gap (Uche & Nwachukwu, 2020).

Moreover, although financial development is widely considered a driver of economic growth, in Nigeria, it has often benefited the already privileged. The financial sector,

rather than serving as a bridge to reduce inequality, has sometimes amplified it by offering greater advantages to those with existing resources and connections (Ogbonna & Ebong, 2019).

Despite the attention given to poverty alleviation and economic reform, few empirical studies in Nigeria have thoroughly examined the interplay of structural, financial, and macroeconomic factors that sustain inequality. As such, a clear understanding of the root causes and dynamics of income inequality remains incomplete.

This study therefore seeks to contribute to the body of knowledge by examining how these underlying forces influence income distribution in Nigeria. Addressing income inequality is not only essential for fairness but also for ensuring social stability and sustainable national development.

1.3 Research Questions

This study seeks to answer the following questions:

i. What is the impact of government expenditure on income inequality in Nigeria?

ii. How does access to credit affect income inequality in Nigeria?

iii. In what ways does inflation influence income inequality in Nigeria?

iv. What role does financial development play in shaping income inequality in Nigeria?

1.4 Research Objectives

The main objective of this study is to examine the key factors influencing income inequality in Nigeria and to understand how these factors contribute to the existing disparity in income distribution.

Specifically, the study aims to:

i. Assess the impact of government expenditure on income inequality in Nigeria.

ii. Evaluate the effect of access to credit on income inequality among Nigerians.

iii. Investigate the influence of inflation on income inequality in the Nigerian economy.

iv. Analyze the role of financial development in determining income inequality in Nigeria.

By achieving these objectives, the study seeks to provide valuable insights for policymakers and stakeholders on how to design effective strategies that promote inclusive economic growth and reduce income disparities.

1.5 Research Hypotheses

To guide this study, the following hypotheses are proposed:

i. There is no significant relationship between government expenditure and income inequality in Nigeria.
ii. Access to credit does not significantly influence income distribution among Nigerians.
iii. Inflation has no significant impact on income inequality in Nigeria.
iv. Financial development does not significantly affect income inequality in Nigeria.

1.6 Scope of the Study

This study focuses on examining the determinants of income inequality in Nigeria, with particular attention to the roles of government expenditure, access to credit, inflation, and financial development. The analysis is based on annual time-series data covering the period 2003 to 2023, a twenty-year span that provides a comprehensive view of the evolving economic landscape and policy responses in Nigeria. This extended time frame allows for the observation of long-term trends and the impact of various economic reforms, financial sector developments, and macroeconomic fluctuations on income distribution.

Geographically, the study considers the Nigerian economy as a whole, encompassing both urban and rural areas to capture the diverse socioeconomic realities across regions. While the research acknowledges other potential factors influencing income inequality, it concentrates on the selected key variables to provide a focused and manageable analysis.

The study also limits its examination to the quantitative measurement of income inequality using the Gini coefficient, allowing for a consistent and widely recognized indicator to assess income distribution patterns.

1.7 Significance of the Study

This study is crucial in providing an in-depth analysis of the multifaceted determinants of income inequality in Nigeria, a pressing issue that undermines the country's social cohesion, economic growth, and sustainable development. Income inequality has been linked to higher poverty levels, social unrest, and unequal access to essential services, making it imperative to understand its root causes to formulate effective policy responses.

By examining the influence of key economic factors such as government expenditure, access to credit, inflation, and financial development, the study offers valuable insights for policymakers, development agencies, and stakeholders. It enables the design of targeted interventions that promote fair income distribution and foster inclusive economic opportunities for marginalized and vulnerable groups across Nigeria.

Furthermore, this research evaluates the effectiveness of government spending and financial policies in addressing income disparities. Understanding how these factors interact with income inequality will help guide future reforms to enhance policy impact and sustainability.

This study also fills a critical gap in the existing literature by using recent and comprehensive data to analyze income inequality determinants, thus contributing empirical evidence that can inform both academic discourse and practical policymaking. Researchers and scholars interested in economic inequality, development economics, and social policy will find this work a valuable resource.

Ultimately, the findings of this study aim to support Nigeria's efforts towards achieving the Sustainable Development Goals (SDGs), particularly SDG 10 (Reduced Inequality), by offering evidence-based recommendations that promote social justice, economic inclusion, and poverty alleviation. Addressing income inequality is vital for fostering a more equitable society and ensuring long-term national stability and growth.

1.8 Limitations of the Study

Despite its contributions, this study faces several limitations that may affect the scope and generalizability of its findings.

Firstly, the availability and quality of data present a significant challenge. Reliable and up-to-date data on income distribution and some of the explanatory variables like access

to credit and financial development may be limited or inconsistently reported in Nigeria. This could impact the accuracy of the analysis.

Secondly, the study focuses on a limited set of determinants—government expenditure, access to credit, inflation, and financial development—while other important factors such as education, labor market dynamics, and social policies are not explored in depth. This narrow focus may overlook some critical influences on income inequality.

Thirdly, the use of the Gini coefficient as the sole measure of income inequality may not capture all dimensions of inequality, such as wealth disparities or regional variations within Nigeria.

Additionally, external economic shocks and political factors that can influence income distribution are beyond the scope of this study, which may limit the contextual understanding of the results.

Lastly, the study's reliance on quantitative data means it may not fully capture the qualitative aspects, such as social and cultural factors, which also play a role in income inequality.

Despite these limitations, the study provides valuable insights into key economic determinants of income inequality in Nigeria and lays the groundwork for future research that can address these gaps

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter reviews relevant literature on income inequality and its determinants, focusing on government expenditure, access to credit, inflation, and financial development. It covers key concepts, related theories, and findings from previous studies. The aim is to provide a clear understanding of the subject matter and identify gaps that this study intends to fill.

2.2 Conceptual Review

2.2.1Concept of Income Inequality

Income inequality refers to the uneven distribution of income among individuals or households within a particular society, region, or country. It highlights disparities in how economic resources are allocated, often resulting in significant gaps between the highest earners and the rest of the population (Todaro, 2021). While some level of inequality is considered a normal feature of economic systems, extreme income disparities can be detrimental to social cohesion, economic stability, and overall development (Sen, 2020).

In economic literature, income inequality is typically measured using quantitative tools such as the Gini coefficient, Theil index, and Palma ratio. The Gini coefficient is the most

commonly used measure, ranging from 0 (perfect equality) to 1 (perfect inequality). A higher Gini value indicates greater inequality in income distribution (World Bank, 2022). According to data from the World Bank, Nigeria's Gini coefficient has remained consistently above 0.40 over the last two decades, signaling persistent and severe inequality (World Bank, 2022).

Income inequality is not only an economic concern but also a multidimensional phenomenon influenced by social, political, and institutional factors. In developing economies like Nigeria, inequality is shaped by differences in access to education, employment opportunities, financial services, healthcare, and political influence (Aigbokhan, 2019). The rural–urban divide, gender disparities, and ethnic or regional differences also exacerbate income distribution imbalances (Okoro, 2020).Scholars have noted that while economic growth is essential for development, it does not automatically translate to reduced inequality. This phenomenon, often referred to as the "growth without development" paradox, is especially evident in resource-rich countries like Nigeria where revenues from oil and gas have not significantly improved income distribution (Ojo, 2021). Instead, economic growth may benefit a small elite while large portions of the population remain excluded from wealth-generating activities (Adedeji, 2020).

Income inequality can manifest in both vertical and horizontal forms. Vertical inequality refers to differences in income among individuals or households, while horizontal

inequality occurs between socially defined groups, such as regions, ethnicities, or genders (Stewart, 2021). In Nigeria, horizontal inequality is particularly prominent, with certain geopolitical zones experiencing chronic underdevelopment compared to others (Eze & Olatunji, 2021).From a policy perspective, reducing income inequality requires more than increasing national income. It involves structural reforms, equitable distribution of public resources, expansion of social protection systems, and inclusive access to productive assets like credit, education, and technology (Onah, 2020). The United Nations Sustainable Development Goal (SDG) 10 explicitly calls for reducing inequality within and among countries, emphasizing the need for policy frameworks that promote equal opportunities and eliminate discriminatory practices (UNDP, 2021).Income inequality is a complex issue that encompasses economic, social, and institutional dimensions. Understanding its root causes and manifestations is crucial for designing effective interventions that promote inclusive and equitable development, particularly in countries like Nigeria where inequality remains deeply entrenched.

2.2.2 Government Expenditure and Income Inequality

Government expenditure plays a significant role in shaping the distribution of income within an economy. It includes public spending on infrastructure, education, healthcare, social welfare, security, and other sectors that directly or indirectly impact citizens' living standards. In principle, well-targeted public spending can be a powerful tool for reducing

income inequality, especially when directed toward pro-poor services and inclusive social policies (Musgrave, 2020).

According to Keynesian economics, public expenditure influences aggregate demand and employment levels, which in turn affect household incomes. Expenditure on education and health is particularly critical, as it promotes human capital development and enhances the earning potential of the disadvantaged (Ogun, 2021). When government investment is equitably distributed and accessible, it helps bridge the gap between the rich and the poor, thereby fostering inclusive growth (Afolabi, 2020).In many developing countries like Nigeria, the impact of government expenditure on inequality has been limited by inefficiencies, corruption, and misallocation of resources. A study by Adegbite (2021) revealed that public expenditure in Nigeria is often skewed towards recurrent spending, with limited allocation to capital projects that can generate long-term benefits for the broader population. This spending pattern reinforces inequality by failing to provide adequate services for the poor and marginalized groups.

Additionally, the concentration of government projects in urban or politically influential regions further widens the income gap across geographical areas (Usman & Ibrahim, 2022). The rural poor, who constitute a significant proportion of the population, often have limited access to government programs and infrastructure. As such, public spending does not always reach the most vulnerable segments of society, undermining its redistributive potential (Okeke, 2020).

Empirical evidence also suggests a mixed relationship between government spending and income inequality. Some studies have shown that social expenditure especially in education, healthcare, and social safety nets—reduces inequality (Ogbuabor & Orji, 2019). On the other hand, excessive or poorly managed government spending can exacerbate inequality if it fuels inflation, widens fiscal deficits, or benefits only the elite class (Yakubu, 2021).

In Nigeria's context, tackling inequality through public expenditure requires a shift in focus from political patronage and short-term gains to long-term investment in social infrastructure. Equitable budgetary allocation, transparent procurement processes, and effective monitoring are essential to ensuring that government spending translates into meaningful improvements in people's lives (Adewale, 2022).While government expenditure has the potential to reduce income inequality, its effectiveness depends on how it is structured, implemented, and monitored. Public policies must prioritize inclusive development and target the structural causes of inequality to achieve sustainable progress.

2.2.3 Access to Credit and Income Inequality

Access to credit is a critical determinant of economic empowerment and income distribution in both developed and developing economies. Credit facilities enable individuals and businessesparticularly small and medium enterprises (SMEs) to invest in income-generating ventures, acquire productive assets, and cope with economic

uncertainties. When credit is accessible, it facilitates entrepreneurship, expands employment, and fosters wealth creation. However, when access is restricted or unequally distributed, it tends to reinforce existing patterns of inequality (Eze & Okoye, 2021).

In Nigeria, credit access remains deeply unequal. Wealthy individuals and large corporations typically enjoy easier and cheaper access to loans from formal financial institutions, while low-income earners, women, informal workers, and rural dwellers face major obstacles. According to the Central Bank of Nigeria (CBN, 2022), less than 40% of adults in rural areas have access to formal banking services, with many relying on informal sources such as moneylenders, cooperatives, and thrift groups—often at high interest rates and with unfavorable repayment terms.

This financial exclusion limits the economic potential of marginalized groups. Many rural farmers, petty traders, and informal sector workers are unable to access the capital needed for business expansion, education, or housing. The lack of credit prevents them from breaking out of poverty and hinders their upward mobility (Iheduru, 2020). As a result, the income gap between the financially included and the excluded continues to widen.

On the contrary, when credit policies favour politically connected elites or large-scale investors, they encourage rent-seeking and worsen income disparities (Udo & Agbo, 2019). Furthermore, commercial banks often adopt credit rationing policies based on strict collateral requirements and formal employment records, excluding the poor and

informal sector from access to affordable financing (Omotayo, 2020).To address these disparities, several government initiatives have been introduced, such as the National Financial Inclusion Strategy, the Agricultural Credit Guarantee Scheme, and the Anchor Borrowers' Programme. While these programs aim to support underserved populations, their effectiveness has been undermined by poor implementation, corruption, and inadequate targeting mechanisms (Nwankwo, 2021).

In conclusion, improving access to credit is a vital pathway to reducing income inequality in Nigeria. Policymakers must focus on removing structural and institutional barriers, expanding mobile and agent banking, strengthening microfinance institutions, and ensuring that underserved populations are not left out of the financial system.

2.2.4 Inflation and Income Inequality

Inflation refers to a sustained increase in the general price level of goods and services in an economy over a period of time. It erodes the purchasing power of money and affects both consumers and producers. While moderate inflation is a natural aspect of growing economies, high or volatile inflation has been widely recognized as a driver of economic hardship, particularly for low-income households (Okonkwo, 2021).

Inflation disproportionately affects the poor because their incomes are typically fixed or grow slower than the rate of inflation. They also spend a higher portion of their income on basic needs such as food, transportation, and shelter. As prices rise, these necessities

become less affordable, forcing poor households to cut back on essential consumption or fall deeper into poverty (Ibrahim, 2020). In contrast, wealthier individuals often have assets that appreciate with inflation such as real estate or shares making them less vulnerable to price increases and sometimes even benefiting from inflationary trends.

In Nigeria, inflation has been persistent and often driven by supply-side constraints, exchange rate volatility, fuel subsidy adjustments, and insecurity in agricultural regions. According to the National Bureau of Statistics (NBS, 2023), headline inflation rose from 15.6% in 2021 to over 22% by mid-2023. Food inflation, in particular, has surged, making it harder for low-income families to meet basic nutritional needs (CBN, 2023).The relationship between inflation and income inequality is also observed through the labor market. In times of inflation, real wages often lag behind price increases, especially in the informal sector, where there are no legal wage protections. This widens the earnings gap between formal and informal workers, as well as between skilled and unskilled labor (Olaniyi, 2019).

Inflation also can affect savings and investment behavior. Poor households are often unable to save during inflationary periods due to the pressure of daily expenses, while wealthier individuals can hedge against inflation using financial instruments, real estate, or foreign currencies (Ezeani, 2022). This unequal ability to adapt to inflation widens the wealth gap over time. Inflation serves as a significant driver of income inequality in Nigeria. Tackling inflation through sound monetary policy, price stability, and improved

food supply chains is essential for reducing the economic burden on low-income households and ensuring a more equitable distribution of income.

2.2.5 Financial Development and Income Inequality

Financial development refers to the growth, efficiency, and accessibility of financial institutions and markets in facilitating the allocation of resources, mobilization of savings, and provision of credit and other financial services. A well-functioning financial system enhances economic growth by channeling funds from savers to investors, promoting entrepreneurship, and supporting job creation and income generation across various sectors of the economy (Ogunleye, 2020).

Theoretically, financial development has the potential to reduce income inequality by enabling broader access to financial services, especially for the poor and marginalized. When financial systems are inclusive, individuals and small businesses can access savings accounts, credit facilities, insurance, and payment services, which help smooth consumption, invest in productive ventures, and manage economic risks (Adebisi, 2021). Through this mechanism, financial development serves as a tool for economic empowerment and upward mobility.

However, financial development can also exacerbate income inequality when access is limited to a privileged few or when financial services are concentrated in urban centers, excluding rural populations. In such cases, financial deepening disproportionately

benefits large firms, high-income individuals, and those with political connections, who are better positioned to take advantage of financial instruments and capital markets (Onah, 2019). This creates a dual economy where the formal sector thrives, while informal and subsistence sectors remain stagnant.

In Nigeria, the financial sector has grown significantly over the past two decades, driven by banking reforms, digitization, and regulatory frameworks aimed at enhancing stability and inclusion. Nonetheless, structural barriers such as high interest rates, low financial literacy, lack of collateral and poor financial infrastructure in rural areas continue to hinder widespread participation in the financial system (CBN, 2022). As a result, a large portion of the population remains financially excluded.Financial development also influences income distribution through its impact on capital accumulation and labor productivity. When inclusive, it encourages investment in education, health, and small-scale businesses, all of which contribute to narrowing income gaps. When access is unequal, financial development can lead to wealth concentration and social exclusion, undermining the goal of equitable development (Nwosu, 2021).

2.2.6 Causes of Income Inequality in Developing Countries

Income inequality in developing countries arises from a variety of interrelated structural and institutional factors that hinder equitable economic participation. One major cause is unequal access to quality education and skills development. Many individuals, particularly those in rural areas, are deprived of the opportunity to attain formal

education, thereby limiting their chances of securing well-paying jobs and improving their socio-economic status (Okon, 2020). Closely related to this is the segmentation of the labor market, where formal sector workers receive better wages and benefits, while the vast majority remain trapped in informal, unstable, and low-income jobs with little to no social protection (Adewuyi, 2021).

Another significant cause is the unequal distribution of productive assets such as land, capital, and property. In many developing nations, access to these assets is skewed in favor of the elite, making it difficult for the poor to invest in agriculture, housing, or small businesses (Ezeaku, 2022). Financial exclusion further compounds this inequality. Many low-income individuals lack access to formal financial services like credit, savings, and insurance, which hinders their ability to invest in economic opportunities and protect themselves against shocks (Iroegbu, 2019).

Geographic and regional disparities also play a critical role in widening the income gap. Urban areas often benefit from better infrastructure, investments, and services, while rural communities remain marginalized and underdeveloped (Musa, 2021). In addition, widespread corruption and poor governance in many developing countries divert public funds away from essential services and social programs, weakening the redistribution of wealth and deepening poverty (Abubakar, 2020). Trade liberalization and technological change have also contributed to rising inequality by disproportionately benefiting skilled

workers and capital-intensive industries, while unskilled labor faces reduced demand and stagnant wages (Ogunlana, 2021).

Lastly, high population growth, especially among the poor, increases pressure on limited public resources and infrastructure, reducing access to essential services like education, healthcare, and employment. This demographic pressure makes it harder to break the cycle of poverty and leads to further social and economic exclusion (Chukwuemeka, 2020). Addressing these root causes requires coordinated policy efforts aimed at equitable resource distribution, inclusive growth, and institutional reforms that prioritize the needs of marginalized populations.

2.2.7 Consequences of Income Inequality

Income inequality has far-reaching consequences that extend beyond the economic domain into the political, social, and institutional fabric of society. Economically, high levels of inequality can undermine sustainable growth by limiting the ability of a large portion of the population to invest in education, healthcare, and entrepreneurship, which are essential drivers of productivity and innovation (Ogundipe, 2021). When wealth is concentrated in the hands of a few, aggregate demand weakens because the marginal propensity to consume is lower among the rich than the poor, thereby slowing down economic progress (Eze, 2022).

Socially, income inequality fuels resentment, erodes trust among citizens, and contributes to social unrest. It often leads to increased crime rates, as individuals with limited economic opportunities may resort to illegal means of survival (Adebayo, 2020). The perception of injustice and exclusion can deepen ethnic, religious, and regional divisions, particularly in multi-ethnic societies like Nigeria, where inequality often overlaps with identity and historical grievances (Okonjo, 2019).

Politically, severe inequality undermines democratic governance and institutional trust. When wealth and political power are concentrated among elites, policy decisions tend to favor their interests, creating a cycle of inequality and exclusion. This weakens accountability, reduces public trust in government institutions, and encourages political apathy among the marginalized (Musa, 2022). In the long term, this can threaten political stability and national unity.

Furthermore, inequality hampers human development. Children from low-income families often face barriers to quality education and healthcare, limiting their future earning potential and perpetuating intergenerational poverty. Gender inequality also becomes more pronounced, as women and girls in disadvantaged households are more likely to be excluded from education and economic participation (Nwosu, 2020). The overall effect is a society that fails to fully utilize its human capital and remains trapped in cycles of poverty and underdevelopment.Income inequality not only limits economic advancement but also weakens social cohesion, undermines political stability, and

reduces human development outcomes. Addressing its consequences requires comprehensive policies that promote inclusive growth, equitable access to opportunities, and social protection for vulnerable groups.

2.2.8 Income Inequality and Inclusive Growth

Inclusive growth refers to economic growth that is sustained over time and widely shared across all segments of society. It not only focuses on increasing GDP but also ensures that the benefits of economic expansion reach the poor and marginalized, leading to reductions in poverty and inequality (Aigbokhan, 2021). However, income inequality poses a major threat to achieving inclusive growth, especially in developing countries like Nigeria. When a large proportion of national wealth is concentrated among a small elite, many individuals remain excluded from the economic system, unable to access the resources, opportunities, and services necessary to improve their living standards (Olawale, 2022).

High income inequality can dampen the impact of growth on poverty reduction by limiting the ability of the poor to invest in education, health, and entrepreneurial activities. It also reduces social mobility, as disadvantaged groups are often trapped in cycles of poverty due to lack of access to credit, quality education, and decent jobs (Chukwuma, 2020). As a result, growth in such contexts tends to be non-inclusive and may even exacerbate social and economic disparities.

Furthermore, inclusive growth requires that public investments and policies target the needs of the underserved particularly women, rural dwellers, and informal workers. When inequality persists, it weakens the capacity of government to raise adequate revenues through taxation, as elites often have the means to evade taxes, thereby limiting public expenditure on essential services like infrastructure, education, and healthcare (Balogun, 2022).

To achieve inclusive growth, countries must tackle the root causes of inequality by promoting fair labor markets, expanding financial inclusion, reforming tax systems, and improving governance and institutional capacity. In Nigeria, efforts to foster inclusive growth must be accompanied by deliberate policies that address regional imbalances, gender inequality, and barriers to social mobility. Without confronting income inequality directly, the goals of shared prosperity and sustainable development will remain out of reach.

2.3 Theoretical Review

This section examines relevant economic theories that provide insights into the determinants and persistence of income inequality, particularly in developing economies like Nigeria. The three theories selected for this study are the Kuznets Curve Theory, the Structuralist Theory, and the Financial Intermediation Theory. Each offers a different perspective on how income distribution is shaped by economic growth, institutional structures, and access to financial resources.

2.3.1 Kuznets Curve Theory

The Kuznets Curve Theory, formulated by Simon Kuznets in 1955, posits that the relationship between economic development and income inequality follows an inverted U-shape. In the early stages of a country's economic growth, income inequality tends to rise as industrialization and structural transformation benefit a limited segment of the population often urban elites and skilled labour while the majority, particularly those in agriculture or informal sectors, lag behind (Todaro & Smith, 2015). However, as development continues, a turning point is expected where income inequality begins to decline due to broader access to education, technology, and redistributive policies such as progressive taxation and social welfare (Fields, 2001).

In the context of developing countries like Nigeria, the Kuznets hypothesis provides insight into the persistent inequality observed alongside periods of economic growth. For instance, Nigeria's oil-driven economic expansion has disproportionately enriched urban-based elites and politically connected groups, while rural populations remain marginalized, lacking access to basic infrastructure, quality education, and healthcare (Ogunleye, 2020). This suggests that Nigeria may still be in the rising phase of the Kuznets curve, where benefits of growth have not been evenly distributed across sectors or regions.

Moreover, the pattern of regional imbalance where states in the oil-producing South-South or urban Lagos area benefit more than the Northern and rural zones illustrates the geographical unevenness of development, which exacerbates inequality (Obi, 2019). While the theory expects a natural decline in inequality as the economy matures, critics argue that such a decline is not automatic. Structural weaknesses, such as corruption, policy inefficiencies, and elite capture of resources, may trap a country in the high-inequality stage indefinitely (Cornia & Kiiski, 2001; Bourguignon, 2004).

Recent evidence further challenges the universality of the Kuznets curve, suggesting that in some countries, inequality continues to rise even with sustained growth due to globalization, labor market liberalization, and weak redistributive institutions (Piketty, 2014; Milanovic, 2016). In Nigeria's case, inadequate fiscal discipline, poor public service delivery, and underinvestment in human capital hinder the equitable spread of growth benefits.

Despite these criticisms, the Kuznets Curve remains a foundational theory in development economics, offering a useful framework for understanding the temporal relationship between growth and inequality. It underscores the importance of adopting inclusive development strategies such as rural development, social investment, and equitable tax systems to move from the inequality-widening phase to the inequality-reducing phase of the development process (Ncube et al., 2014).

2.3.2 Structuralist Theory

The Structuralist Theory of income inequality emphasizes the role of deep-rooted institutional, political, and economic structures in shaping income distribution. Unlike classical theories that link inequality primarily to market forces or development stages, Structuralist thinkers argue that inequality in developing countries stems from inherited social hierarchies, colonial legacies, and the concentration of political and economic power in the hands of a few (Kay, 2005).

Structuralist assert that economic systems in many developing countries, including Nigeria, are characterized by dualisma modern, urban-based, capitalist sector coexisting with a traditional, rural, subsistence economy. This dualism creates persistent inequality because the benefits of growth tend to remain within the modern sector, while the rural population is excluded from access to capital, education, infrastructure, and political voice (Todaro & Smith, 2020).

In Nigeria's context, structural factors such as regional disparities, ethnic favoritism, uneven access to quality education, weak land tenure systems, and gender inequality contribute to income disparity. For example, the North-South divide in educational attainment and infrastructure development has resulted in unequal economic opportunities between regions (Akinyemi, 2021). Furthermore, policies and institutions

are often captured by elite interests, leading to biased allocation of public resources and perpetuation of economic dominance (Ogunyemi, 2020).

Structuralist theory also critiques the reliance on neoliberal policies such as deregulation, privatization, and trade liberalization, which, in the absence of strong institutions, often widen inequality. These policies can result in job losses, informalization of labor, and reduced access to basic social services—particularly for vulnerable populations (Mkandawire, 2010; Bello, 2021).

Moreover, systemic issues such as corruption, weak governance, and institutional inefficiency further compound inequality. For instance, when public funds meant for health, education, or rural development are misappropriated, the most disadvantaged groups continue to bear the brunt of deprivation, while wealth concentrates at the top (Adebayo, 2022).The Structuralist Theory underscores that income inequality in developing countries like Nigeria is not merely a result of economic forces but is rooted in historical, political, and institutional imbalances. Addressing inequality, therefore, requires systemic reforms aimed at inclusive governance, equitable resource distribution, and institutional accountability.

2.3.3 Financial Intermediation Theory

The Financial Intermediation Theory highlights the critical role that financial institutions—such as banks, credit unions, and microfinance institutions—play in

channeling funds from savers to borrowers, thereby promoting investment, entrepreneurship, and economic development. A well-functioning financial system enhances the efficiency of capital allocation, improves access to financial services, and facilitates income redistribution, especially in developing economies (Schumpeter, 1934; Levine, 2005).

According to this theory, when financial intermediaries operate efficiently and inclusively, they help bridge the gap between the rich and the poor by enabling low-income individuals and small businesses to access credit, savings, and insurance services. This, in turn, fosters upward mobility, asset accumulation, and job creation key drivers of reduced income inequality (Greenwood & Jovanovic, 1990).

However, when financial intermediation is limited or skewed in favor of the wealthy or politically connected, it contributes to income inequality. In many developing countries like Nigeria, access to financial services remains uneven. Formal credit institutions often require collateral, detailed documentation, and credit histories barriers that exclude the poor, rural dwellers, and informal sector workers from participation in financial markets (Nwankwo, 2021).

Moreover, urban bias in financial infrastructure development often means that rural and marginalized communities lack physical access to banks and financial intermediaries, further widening the financial and income gap. This exclusion not only limits their ability

to invest in education, health, or entrepreneurship but also makes them more vulnerable to economic shocks and cycles of poverty (Olayemi, 2020).

The theory also emphasizes that financial intermediation is not just about availability of services, but also about affordability and usability. High interest rates, hidden charges, and complex procedures often deter poor individuals from engaging with formal financial systems. When financial systems are not inclusive, capital becomes concentrated in the hands of a few, and economic inequality deepens (Afolabi, 2022).

To combat this, the Financial Intermediation Theory advocates for reforms that promote financial inclusion such as the expansion of microfinance institutions, mobile banking, and financial literacy programs. Strengthening the regulatory framework and ensuring that credit flows to productive sectors especially agriculture, small businesses, and education—are vital for narrowing the income gap and promoting inclusive growth (Beck & Demirgüç-Kunt, 2008).Financial Intermediation Theory underscores that access to financial services is a powerful tool for reducing income inequality. By creating inclusive, efficient, and equitable financial systems, governments and policymakers can empower disadvantaged groups and promote more balanced economic outcomes.

2.4 Empirical review

Kolawole, Omobitan & Yaqub (2014) utilized regression and time-series analysis on Nigerian data (1980–2012), finding that GDP growth raised inequality but reduced

poverty; public health spending decreased inequality, while inflation and education spending increased it.

Chukwuma & Ogbonna (2017) employed regression techniques to examine the impact of inflation on income distribution. They found inflation disproportionately affected low-income earners, widening income gaps and reinforcing inequality.

Udo & Agbo (2019) employed regression analysis on policy and financial data. They concluded that credit programs biased toward elites reinforced income concentration and undermined equity in the Nigerian context.

Adebayo (2020) used logit and IV models on microfinance survey data. They demonstrated that access to microcredit services in Northern Nigeria significantly increased household income and decreased poverty, highlighting credit's redistributive effects.

Iheduru (2020) utilized logit models on access and poverty data. He showed that rural financial exclusion significantly contributed to persistent poverty and inequality due to limited access to formal banking.

Afolabi (2020) employed ARDL techniques on data between 1981 and 2017, using indicators such as rural loans, number of bank branches, credit to GDP ratio, and money supply ratio. They found that financial inclusion—especially rural loans and banking

infrastructure—positively and significantly impacted inclusive growth, supporting inequality reduction.

Ibrahim & Aliero (2020) used instrumental variable regression (IVR) and quantile regression to analyze survey data. They found that financial inclusion strongly improved per capita income convergence across households, leading to reduced income disparity over time, especially benefiting the poorest in later waves.

Eze & Alugbuo (2021) utilized instrumental variable and logit models on microdata. They established that greater financial usage and quality predicted lower poverty and better consumption outcomes, implicating financial inclusion in reducing inequality.

Akinola (2021) applied regression analysis to survey data on small business credit schemes. Findings showed that targeted credit policies for SMEs boosted employment and wealth distribution among underserved groups, contributing to inequality reduction.

Ibrahim & Okoh (2021) examined data from 1989 to 2020 using multiple regression to assess how income inequality and inflation affected per capita income in Nigeria. They found that higher inequality and poverty significantly reduced per capita income; inflation had a negative but statistically insignificant effect. They concluded that redistributive policies and controlling inflation could lessen inequality.

Ozoh, Ede & Orji (2022) used household survey data to examine access to credit and welfare. They found better credit access—especially for women and youth—significantly raised household income and welfare, supporting the argument that financial inclusion reduces inequality.

Yemi Adewoyin, Ijeoma Gladys Nwosu, Onyinyechi Gift Ossai, & Juliana Chukwunonso Onuh (2022) analyzed data from the Nigerian DHS 2018 on 36,601 women, using multivariate regression. They found low overall women's financial inclusion (~20%), with educational attainment, wealth, and religion affecting inclusion differently in rural vs. urban areas—implicating inequality in financial access.

Adeleye & Osabuohien (2022) employed panel regressions comparing Nigeria and South Africa using data from 1980–2015. They found that domestic credit increases inequality unless interest spreads fall, in which case credit becomes equalizing.

Nwonye, Ogbuagu & Akpan (2023) used ARDL bounds testing on data from 1980 to 2018 to assess the impact of government expenditure, aid, and remittances on inequality. They found that capital expenditure slightly reduced inequality in the long run, recurrent expenditures increased it, and foreign aid reduced inequality while remittances raised it.

Onwuemeka (2024) applied ARDL methods to data between 1981 and 2023 to study inflation, unemployment, poverty, and income inequality. They found that all three

variables increased poverty in the short run, with bidirectional causality between inequality and poverty, and unidirectional causality from inflation to poverty.

Musa Gani & Atiku (2024) analyzed the impact of financial inclusion and cashless policy using IVR, IVQR, and logit regression on Nigerian data. They reported that inclusion significantly improved income equality among lower-income groups, but the cashless policy had limited impact, suggesting alternative inclusion strategies are needed.

Simplice A. Asongu, Peter Agyemang-Mintah, Joseph Nnanna, & Yolande E. Ngoungou (2024) performed quantile regression on African data (1980–2019), finding that mobile money innovations interact with income inequality to enhance women's economic and political participation. Their findings highlight digital financial inclusion as an important moderator of inequality.

Fatoba & Otonne (2024) used Bayesian VAR modeling on fiscal shocks in Nigeria. They found that tax shocks reduced inequality over time, while government expenditure increased it in the short run before marginal long-term reductions occurred.

Adeniyi, Oladeji, Zekeri, Olasehinde & Abimbola (2024) used cointegration and error-correction models to study wage dynamics. They found that food and transport inflation had persistent negative effects on employee compensation, particularly for low-wage workers, thereby exacerbating income inequality.

Obiora & Ozili (2024) conducted a comparative analysis of financial inclusion metrics, using descriptive and regression analysis. They found that debit/credit card ownership and formal borrowing significantly determined financial inclusion, with Nigeria outperforming SSA averages in several categories.

2.4.1 Summary of Empirical Review

S/N	Name of Author	Methodology	Year	Findings
1.	Kolawole et al.	Regression and time-series analysis on Nigerian data (1980–2012)	(2014)	GDP growth increased inequality but reduced poverty; health spending reduced inequality, while inflation and education spending increased it.
2.	Chukwuma & Ogbonna	Regression analysis	(2017)	Inflation negatively affected low-income earners the most, widening income gaps and reinforcing inequality in Nigeria.
3.	Udo & Agbo	Regression analysis on financial and policy data	(2019)	Credit programs that favored elites led to greater income concentration and reduced equity.

S/N	Name of Author	Methodology	Year	Findings
4.	Adebayo	Logit and IV models on microfinance survey data	(2020)	Microcredit access in Northern Nigeria significantly increased household income and reduced poverty, revealing its redistributive potential.
5.	Iheduru	Logit models on access and poverty data	(2020)	Rural financial exclusion contributed to persistent poverty and inequality due to limited access to formal financial services.
6.	Afolabi	ARDL technique using indicators like rural loans, number of bank branches, credit to GDP ratio, and money supply ratio (1981–2017)	(2020)	Financial inclusion through rural loans and banking infrastructure positively and significantly impacted inclusive growth and reduced inequality.
7.	Ibrahim & Aliero (	Instrumental variable regression (IVR) and quantile regression on survey data	2020)	Financial inclusion improved per capita income convergence, reduced income disparity over time, and significantly benefited poorer households.

S/N	Name of Author	Methodology	Year	Findings
8.	Eze & Alugbuo	Instrumental variable and logit models on microdata	(2021)	Greater financial usage and service quality led to reduced poverty and better consumption outcomes, supporting financial inclusion as a tool to reduce inequality.
9.	Akinola	Regression analysis on survey data	(2021)	Small business credit schemes significantly improved employment and wealth distribution, reducing inequality among underserved groups.
10.	Ibrahim & Okoh	Ordinary Least Squares (OLS) and Granger Causality	2021	Income inequality and poverty significantly reduced per capita income, while inflation had an insignificant negative effect.
11.	Ozoh, Ede & Orji	Household survey analysis	(2022)	Improved access to credit—especially for women and youth—significantly raised household income and welfare, indicating financial inclusion reduces inequality.
12.	Adewoyin et al.	Multivariate regression using Nigerian DHS 2018 data (36,601 women)	(2022)	Women's financial inclusion was low (~20%). Factors such as education, wealth, and religion significantly affected inclusion, showing urban-rural disparities in financial

S/N	Name of Author	Methodology	Year	Findings
				access.
13.	Adeleye & Osabuohien	Panel regression comparing Nigeria and South Africa (1980–2015)	(2022)	Domestic credit increased inequality unless interest rate spreads decreased, in which case credit acted as an equalizing force.
14.	Nwonye et al.	Autoregressive Distributed Lag (ARDL) Model	2023	Capital expenditure slightly reduced inequality, while recurrent expenditure widened it. Foreign aid was found to be inequality-reducing, whereas remittances worsened it.
15.	Onwuemeka	ARDL Cointegration and Causality Tests	2024	Inflation, unemployment, and inequality were all found to raise poverty levels significantly in the short run, with causality running from inflation to poverty.
16.	Musa Gani & Atiku	IVR, IVQR, and logit regression on Nigerian data	(2024)	Financial inclusion improved income equality among low-income groups, but cashless policies had limited impact, suggesting the need for alternative strategies.

S/N	Name of Author	Methodology	Year	Findings
17.	Asongu et al.	Quantile regression on African data (1980–2019)	(2024)	Mobile money innovations interact with income inequality to promote women's economic and political participation, underscoring the role of digital financial inclusion.
18.	Fatoba & Otonne	Bayesian VAR model on fiscal shocks in Nigeria	(2024)	Tax shocks reduced inequality over time; government expenditure increased inequality in the short run but reduced it slightly in the long term.
19.	Adeniyi et al.	Cointegration and error correction models	(2024)	Food and transport inflation had persistent negative effects on wages, especially for low-income workers, deepening income inequality.
20.	Obiora & Ozili	Descriptive and regression analysis on financial inclusion metrics	(2024)	Debit/credit card ownership and formal borrowing were key drivers of inclusion. Nigeria outperformed Sub-Saharan Africa in many metrics.

CHAPTER THREE

METHODOLOGY

3.1. Introduction

This chapter provides a comprehensive overview of the methodology adopted to address the study's research questions. It is designed to give a clear understanding of the processes and techniques used to conduct the study. The chapter covers the research design, sources of data, model specification, variable measurement, and methods of data analysis. These components collectively ensure a structured and objective approach to investigating the determinants of income inequality in Nigeria.

3.2. Research Design

This study adopts a time-series research design. This design was chosen because the study utilizes annual data on selected macroeconomic variables in Nigeria over a twenty-one-year period (2003–2023). The research examines the relationship between income inequality and key economic factors including government expenditure, access to credit, inflation, and financial development. The time-series design enables the analysis of long-term trends and causal relationships among the variables under investigation.

3.3. Source of Data

This study relies entirely on secondary data collected from reputable and publicly available sources. Annual time-series data covering the period from 2003 to 2023 were obtained for all variables. Specifically, data on income inequality (measured by the Gini coefficient), government expenditure, inflation rate, access to credit, and financial development were sourced from the following institutions:

- World Bank World Development Indicators (WDI)
- Central Bank of Nigeria (CBN) Statistical Bulletin
- National Bureau of Statistics (NBS)
- International Monetary Fund (IMF) Data Portal

These sources were selected due to their credibility, consistency, and frequent updates, ensuring the reliability and validity of the data used in the analysis

3.4 Model Specification

This study draws on the model developed by Anyanwu (1997) and further applied by Akinbobola (2015) in examining the determinants of income inequality in Nigeria. In their framework, income inequality was modeled as a function of key macroeconomic variables such as government expenditure, inflation, financial development (proxied by

broad money supply (M2) as a percentage of GDP), and access to credit. The general form of their model is specified as:

$$\mathbf{INEQ_t=\alpha_0+\alpha_1GEXP_t+\alpha_2CRED_t+\alpha_3INF_t+\alpha_4FINDEV_t+\mu_t} \text{ .....} \mathbf{(3.1)}$$

By including income inequality, measured by the Gini coefficient, as a function of government expenditure, access to credit, inflation, and financial development, the present study modifies the Anyanwu–Akinbobola model. As a result, the functional form below represents the modified model for this study:

$$\boldsymbol{GINI=f(GEXP,CRED,INF,FINDEV)\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots(3.2)}$$

The econometric form of the model is given as:

$$\mathbf{GINI_t=\beta_0+\beta_1GEXP_t+\beta_2CRED_t+\beta_3INF_t+\beta_4FINDEV_t+\mu_t\ldots\ldots\ldots(3.3)}$$

Where:

- $GINI_t$= Income inequality (measured by Gini coefficient) at time *t*
- $GEXP_t$ = Government expenditure as a percentage of GDP
- $CRED_t$= Access to credit (domestic credit to the private sector as a percentage of GDP)
- INF_t= Inflation rate (annual %)

- $FINDEV_t$ = Financial development (measured by M2/GDP)
- β_0 = Intercept term
- β_1–β_4 = Coefficients of explanatory variables
- μ_t = Error term

The ARDL (Autoregressive Distributed Lag) framework is employed to capture both short-run and long-run dynamics between the selected macroeconomic variables and income inequality in Nigeria.

3.5 Operationalization of Variables

To ensure clarity and consistency in measurement, the study operationalizes its variables as shown in Table 3.1 below.

Table 3.1: Operationalization of Variables

S/N	Variable Type	Variable Name	Measurement	Expected Relationship	Source
1	Dependent	Income Inequality (GINI)	Gini coefficient (0–100; higher values indicate greater inequality)	N/A	World Bank, IMF; interpolated for missing years
2	Independent	Government Expenditure (GEXP)	General government final consumption expenditure as % of GDP	Negative (expected to reduce inequality)	World Bank, CBN Statistical Bulletin
3	Independent	Access to Credit (CRED)	Domestic credit to the private sector as % of GDP	Negative (expected to reduce inequality)	World Bank, CBN Statistical Bulletin

4	Independent	Inflation (INF)	Annual percentage change in Consumer Price Index (CPI)	Positive (expected to worsen inequality)	World Bank, CBN Statistical Bulletin
5	Independent	Financial Development (FINDEV)	Broad money supply (M2) as a ratio of GDP	Negative (expected to reduce inequality)	World Bank, CBN Statistical Bulletin

This operationalization ensures that all variables are clearly defined, measurable, and directly linked to the study's objectives and hypotheses (Gujarati & Porter, 2009; Baltagi, 2005).

3.6 Method of Data Analysis

This study employed descriptive statistics and the Auto-Regressive Distributed Lag (ARDL) model to analyze the determinants of income inequality in Nigeria between 2003 and 2023. Descriptive statistics summarized the dataset, while correlation analysis examined relationships among variables. The ARDL technique, supported by the Error Correction Mechanism (ECM), was applied to estimate both short-run and long-run

effects of government expenditure, access to credit, inflation, and financial development on income inequality. Diagnostic tests were also conducted to confirm the validity and stability of the model. All analyses were carried out using EViews 12.

3.7 Limitations of Methodology

The methodology employed in this study is robust but subject to the following limitations:

i. Reliable Gini coefficient data were available for only a few years; interpolation was applied for the missing years, which may slightly affect the precision of the results.
ii. The model focuses on four macroeconomic variables; government expenditure, access to credit, inflation, and financial development and does not account for other factors such as unemployment, taxation, and governance that may also influence inequality.
iii. The study relies on historical time-series data from 2003–2023, which may not fully capture future dynamics or structural changes in the Nigerian economy.

Despite these limitations, the chosen methodology and ARDL framework provide a strong and reliable basis for analyzing the determinants of income inequality in Nigeria.

CHAPTER FOUR

DATA PRESENTATION AND ANALYSIS

4.1 Introduction

The main goal of this study is to examine the determinants of income inequality in Nigeria. The presentation, analysis and interpretation of the data stream collected for this study is the focus of this chapter. Consequently, it embodies the application of both statistical and econometric techniques. The initial characterization of the data is done using the statistical techniques, while the estimation of relationships and other parameters for testing the hypotheses is done using econometric techniques. The time series properties of the variables used for the empirical analysis are also investigated.

4.2 Data Presentation

The data stream for this study is from 1981 to 2023 and is presented in appendix 1.

4.3 Data Analysis

4.3.1 Descriptive Statistics

The descriptive statistics are designed to show the summary of data and other basic characteristics within the dataset for the study. The annualized summary statistics for all the variables in the study for the period 1981 to 2023 are reported in Table 4.1.

Table 4.1: Descriptive Statistics

	GINI	GEXP	CRED	INF	FINDEV
Mean	44.26703	8931.985	11.91209	10.87860	15.89023
Median	43.78300	1269.320	8.110000	11.40000	13.02000
Maximum	57.15000	48462.07	22.75000	28.92000	27.09000
Minimum	35.54100	47.42000	5.810000	0.170000	8.460000
Std. Dev.	7.480805	13158.37	5.770037	6.855877	5.662396
Skewness	0.179083	1.462378	0.574877	0.434496	0.479408
Kurtosis	1.471986	4.019533	1.579483	2.857137	1.599445
Jarque-Bera	4.413070	17.18862	5.983809	1.389542	5.161577
Probability	0.110081	0.000185	0.050192	0.499189	0.075714
Sum	1903.482	384075.4	512.2200	467.7800	683.2800
Sum Sq. Dev.	2350.423	7.27E+09	1398.320	1974.128	1346.635
Observations	43	43	43	43	43

Source: Author's computations, (2025) using Eviews 9.0

The average annual change in Gini coefficient which is the proxy for income inequality in Nigeria is 44.27 percent, which is below average rate of change in income inequality in Nigeria. With a maximum value of 57.15 percent, it is seen that there were periods of mild annual increases in the income inequality, although there were also periods of year-on-year declines in Gini coefficient, as seen by the minimum value of 35.54 percent. The standard deviation value for the Gini coefficient (income inequality measure) is much lower than the mean value, suggesting that there were low swings or movements (variability) in the income inequality indicator (Gini coefficient) in Nigeria over the period. This is also confirmed by the low kurtosis value of 1.47 which is lower than the 3.0 margin. The data set for GINI coefficient is positively skewed to the right. Meanwhile, the J-B values of 4.41 reveals that GINI coefficient b(income inequality) fail the significance test at the 5 percent level as showed in its probability value of 0.11 which is clearly > 0.05, an indication that GINI coefficient is normally distributed.

The independent variables have similar characteristics with dependent variable namely, low variability. However, J-B values for some of the independent variables were also not significant and normally distributed while some were significant and not normally distributed. All the independent variables were positively skewed to the right.

4.3.2 Correlation Analysis

In order to examine the initial characterisation in terms of the nature and degree of associations between the variables used in the analysis, the correlation analysis is conducted. The outcome of the correlation matrix is presented in Table 4.2.

Table 4.2: Correlation Matrix Result

Correlation Probability	GINI	GEXP	CRED	INF	FINDEV
GINI	1.000000 -----				
GEXP	-0.450988* 0.0024	1.000000 -----			
CRED	-0.821109* 0.0000	0.272489 0.0771	1.000000 -----		
INF	-0.474155* 0.0013	0.026518 0.8660	0.403918* 0.0072	1.000000 -----	
FINDEV	-0.835625* 0.0000	0.227107 0.1430	0.870210* 0.0000	0.446600 0.0027	1.000000 -----

* Significance at 1% Level
Source: Author's computation, (2025) using Eviews 9.0. Probabilities in parentheses () below each coefficient

The correlation matrix for the variables indicates that all the independent variables (government expenditure, access to credit, inflation rate and financial development) have a significant strong inverse association with income inequality (GINI) at 1% confidence level. This implies that increases in the independent variables (GEXP, CRED, INF and FINDEV) strongly and significantly reduce income inequality (GINI) during the studied period as indicated by their corresponding negative coefficients. A significant moderate negative correlation coefficient is also shown for government expenditure and income inequality. This implies that increase in government expenditure significantly reduces income inequality. Also, access to credit (CRED) has a significant direct association with GINI at 1% confidence level. This implies that increase in CRED significantly increases income inequality during the studied period.

Regarding the correlation among the explanatory variables, access to credit, inflation rate and financial development insignificantly and directly correlated with Government expenditure while inflation rate and financial development were positively correlation with acce4ss to credit. Also, financial development was positively and significantly correlated with inflation rate. Given, the values of the correlation results which is less than 0.90, we can safely conclude that autocorrelation is not a major problem in the data and we can go ahead to use the data for regression analysis in this study.

4.3.3 Bounds Tests for Co-integration

The criterion for the co-integration bounds test entails the evaluation of F-statistics against the critical values. The result of the co-integration test using the ARDL approach (bounds test approach of co-integration) is presented in Table 4.3.

Table 4.3: ARDL Bounds Test for Co-integration - Selected Model:

Test Statistic	Value	k
F-statistic	1.381923	4

Critical Value Bounds

Significance	I0 Bound	I1 Bound
10%	2.45	3.52
5%	2.86	4.01
2.5%	3.25	4.49
1%	3.74	5.06

Source: Author's computations, (2025) using Eviews 9.0.

The results in Tables 4.3 revealed that the test is not significant at 1% level, since the F-statistic value of 1.38 was below all the lower and upper bound value at 10%, 5%, 2.5% and 1% as shown in Tables 4.4, hence, the null hypothesis of no long run co-integration would be accepted owing to the fact that the value in the upper and lower Critical Bounds at 10%, 5%, 2.5% and 1% level of significance is higher than the value of F-Statistic. Thus, there is no presence of co-integrating relationship among the variables in the model. Therefore, the results in Table 4.4 confirmed the none presence of a long-run relationship between the income inequality indicator (GINI coefficient) and its

explanatory variables (government expenditure, access to credit, inflation rate and financial development). This outcome necessitates the estimation of the short run relationship among these variables.

4.3.4 Regression Analysis

Tables 4.4 summarize the results of the determinants of income inequality in Nigeria in the short run. The automatic lag selection based on the Akaike Information Criterion (AIC) was used to select the optimal lag length and the ARDL 2, 0, 0, 0, 0 was the final model chosen for the study.

Table 4.4: Short-Run Error Correction Result

Dependent Variable: LGINI Method: ARDL Model Selection Criteria: AIC Model Selected: ARDL (2, 0, 0, 0, 0)			
Variables	**Coeff.**	**t-stat**	**Prob.**
D(GINI(-1))	0.910228	7.943713	0.0000*
D(GEXP)	-0.000011	-1.243428	0.2222
D(CRED)	-0.004248	-0.061390	0.9514
D(INF)	-0.010356	-0.607577	0.5475
D(FINDEV)	-0.066513	-0.845217	0.4039
CointEq(-1)	-0.079683	-2.593933	0.0139*

Source: Author's computation, (2025) using Eviews 9.0. Note: * indicate significance at 1% level.

The short run ARDL estimation of the short run model revels that the effect of one year lag value of income inequality [D(GINI(-1))] on the current value of income inequality [D(LGINI)] was positive and statistically significant (p. < 0.01). The short run results also show that government expenditure [D(GEXP)] with a coefficient of-0.000011exerts an insignificant negative effect on income inequality [D(GINI)] since the (p. > 0.05). The

short run results further reveals that access to credit [D(CRED)] with a coefficient of -0.004248 was observed to have a negative and insignificant relationship with income inequality [D(GINI)] since the (p. > 0.05) however, the signs are consistent with a priori expectation. Furthermore, the short run results reveal that inflation rate (D(INF)) with a coefficient of -0.010356 exerts a negative and insignificant effect on income inequality. The short run result further reveals that the effect of financial development (D(FINDEV)) on income inequality was negative and statistically insignificant (p. > 0.05). This implies that financial development is not a key factor that influences income inequality within the studied period. The coefficient of error correction term CointEq(-1) or (ECT) is observed to possess the expected sign (negative) and is statistically significant at the 1% level and it signals how fast the variables adjust to equilibrium. The coefficient of the ECM or CointEq(-1) which is (-0.079683) indicates that past period disequilibrium is corrected in the current period. This shows that the speed at which disequilibrium is corrected (7.96%) is not too high.

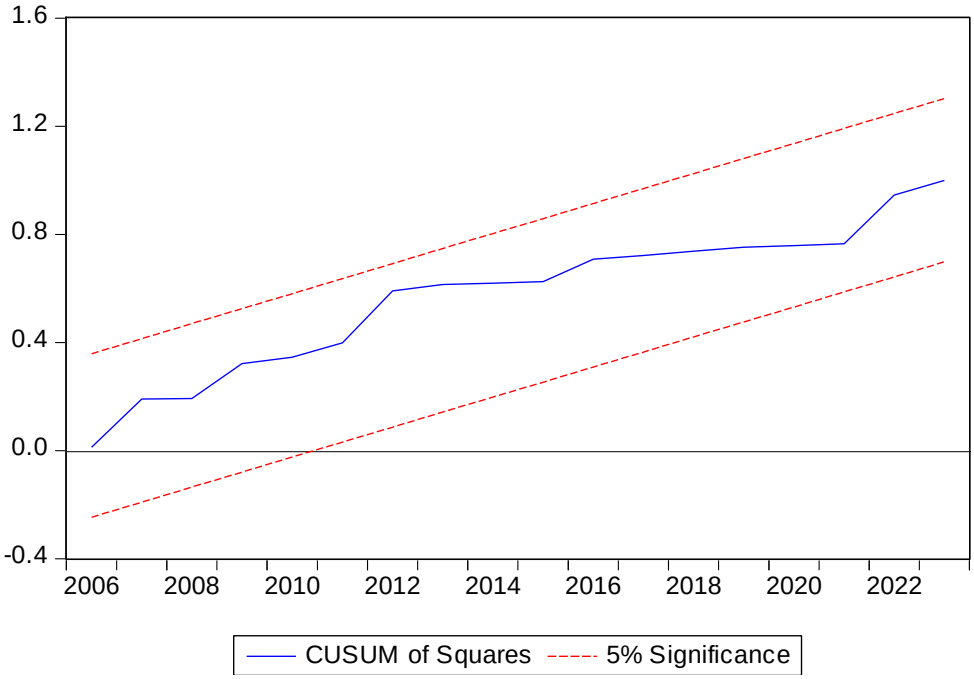
4.3.5 Stability Test

A stability test of the long run and short run coefficients using the cumulative sum (CUSUM) and the cumulative sum of squares (CUSUMQ) was performed. Pesaran and Pesaran (2009) outlined the need to analyze the stability of the long-run coefficients in conjunction with the short-run dynamic model. Accordingly, the parametric stability can be tested using cumulative of the recursive residuals (CUSUM) as well as the cumulative sum of squares of recursive residual (CUSUMQ) (Figures 1 and 2). CUSUM and

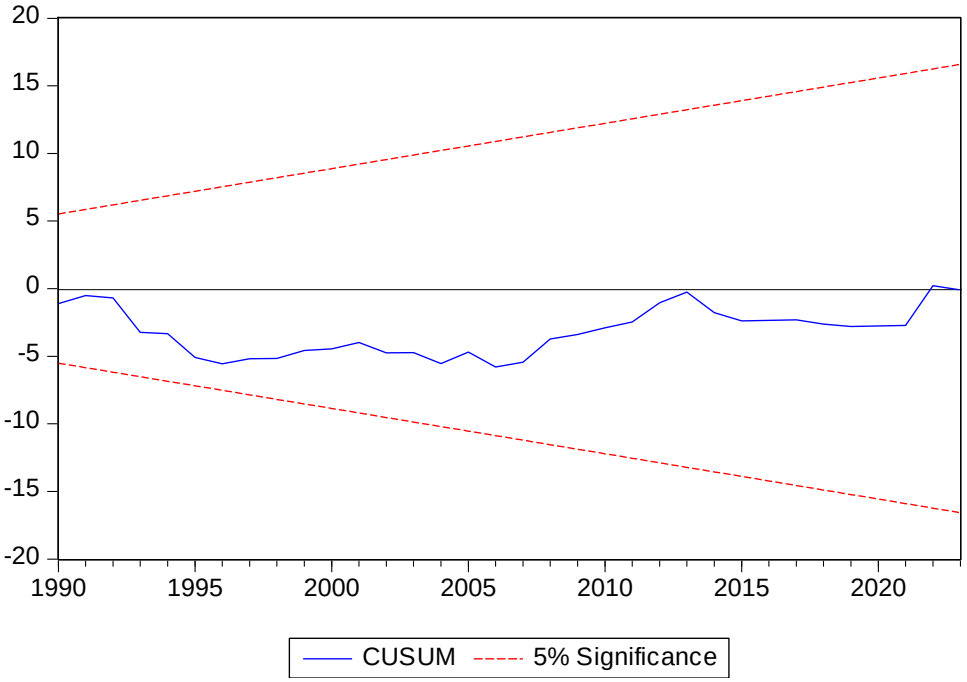
CUSUMQ statistics are plotted against the critical bound of 5 per cent significance. As noted by Bahmani-Oskooee (2001), if the plot of these statistics remains within the critical bound of 5 per cent significance level, the null hypothesis, which states that all coefficients in the error correction model are stable, cannot be rejected. In other words, if the blue line crosses redline which is critical line and never returns back between two critical line, we accept the null hypothesis of the parameter instability whereas the cumulative sum goes inside the area (can returns back) between the two critical lines, then there is parameter stability in the short-run and long-run.

As observed by Bahmani-Oskooee (2001), the stability of the regression coefficients is evaluated by stability tests, and stability tests can show whether or not the regression equation is stable over time. This stability test is appropriate in time series data, especially when one is uncertain when change might have taken place. The null hypothesis is that the coefficient vector is the same in every period. The plots of the recursive residuals are presented in Figures 1 and 2. As shown in the graphs, the plots of CUSUM and CUSUMQ residuals are within the boundaries. Thus, the plots of CUSUM and CUSUM SQURE test statistics rests neatly within the boundaries at 5% significant level. This implies that the parameters of the models have remained stable within its critical bounds. Hence, we can conclude that long-run estimates are stable and there is no structural break.

Figure 1: Plot of Cumulative Sum of Recursive Residuals - CUSUM Test (Dependent Variable LGINI: ARDL (2, 0, 0, 0, 0))

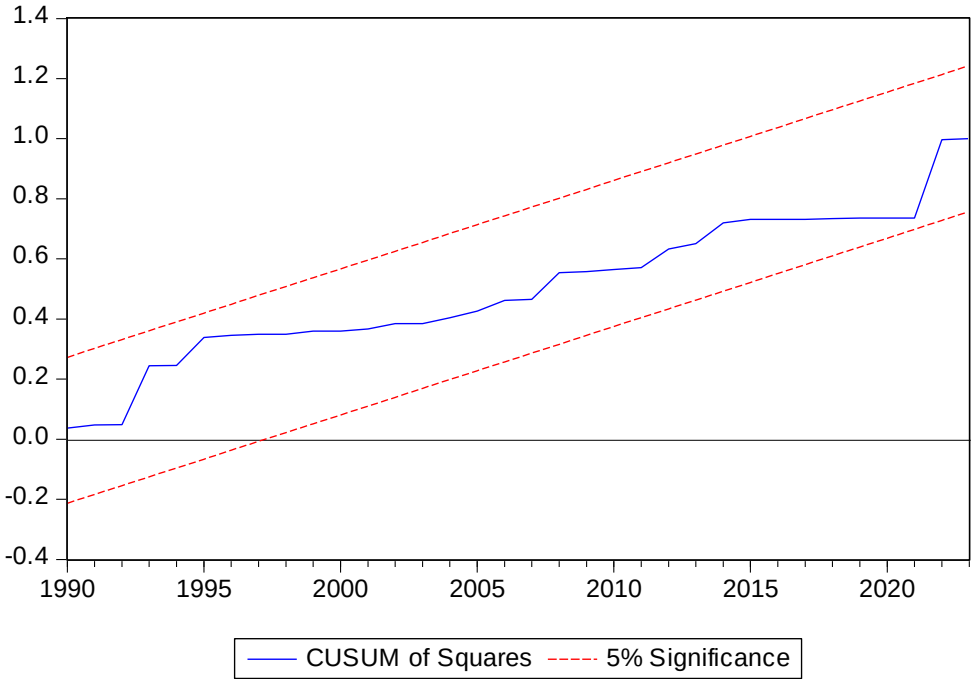


Source: Author's computation, (2025) using Eviews 9.0



Source: Author's computation, (2025) using Eviews 9.0

Figure 2: Plot of Cumulative Sum of Squares of Recursive Residuals - CUSUM SQUARE Test (Dependent Variable LGINI: ARDL (2, 1, 0, 3, 0, 2, 3, 3, 0))



Source: Author's computation, (2025) using Eviews 9.0

4.3.6 Test of Hypotheses

The hypotheses formulated in this study are tested in this section using the t-ratios from the short-run and long-run ARDL regression results. The study adopted 5% level of significance to conduct the test on the different hypotheses formulated.

Hypothesis One

H_{01}: Government expenditure does not significantly affect income Inequality in Nigeria.

From the short run estimates in Tables 4.4 the coefficient of government expenditure (GEXP) is 0.91 (p-value = 0.22 > 0.05). At the 5 percent level of significance, the t-

value of the coefficient of government expenditure (GEXP) variable failed the statistical t-test in the short-run. Therefore, the null hypothesis that government expenditure has no significant effect on income inequality in Nigeria in the short-run is accepted in the study; hence the alternative hypothesis is rejected.

Hypothesis Two

$H_{02:}$ *Access to credit has no significant effect on income Inequality in Nigeria.*

The coefficient of access to credit (CRED) in the short estimates in Table 4.4 is used in testing this hypothesis. In the short run results, the coefficient of CRED is -0.004 (p-value = 0.95 > 0.05). The result therefore shows that the t-value of the coefficient of access to credit (CRED) failed the significance test at the 5 percent level in the short-run. On this basis, the alternative hypothesis is rejected while the null hypothesis is accepted; indicating that access to credit has no significant effect on income inequality in Nigeria in the short-run.

Hypothesis Three

$H_{03:}$ *Inflation rate has no significant effect on income Inequality in Nigeria.*

The coefficient of inflation rate (INF) in the short run estimates in Table 4.4 is used in testing this hypothesis. In the short run results, the coefficient of INF is -0.01 (p-value = 0.54 > 0.05). The result therefore shows that the t-value of the coefficient of inflation rate (INF) failed the significance test at the 5 percent level in the short-run. On this basis, the alternative hypothesis is rejected while the null hypothesis is accepted; indicating that

inflation rate (INF) has no significant effect on income inequality in Nigeria in the short-run.

$H_{04:}$ *Financial development does not have any significant effect on income Inequality in Nigeria.*

The coefficient of financial development (FINDEV) in the short estimates in Table 4.4 is used in testing this hypothesis. In the short run results, the coefficient of FINDEV is -0.06 (p-value = 0.40 > 0.05). The result therefore shows that the t-value of the coefficient of financial development (FINDEV) failed the significance test at the 5 percent level in the short-run. On this basis, the alternative hypothesis is rejected while the null hypothesis is accepted; indicating that financial development has no significant effect on income inequality in Nigeria in the short-run.

4.3.8 Discussion of Findings

The study finds that government expenditure (GEXP) has an insignificant negative impact on income inequality (GINI) in the short-run. The implication of this finding is that government expenditure is not a key factor that influences income inequality in Nigeria in the short-run. This findings aligns with the submission of Nwonye et al., (2023), who reported a non-significant negative relationship between government expenditure and income inequality; but disagreed with that of Fatoba and Otonne (2024) who concluded that government expenditure has a significant negative influence on income inequality.

The empirical findings indicates that the coefficient of access to credit (CRED) have an insignificant negative impact on income inequality (LGINI) in the short-run. The implication of access to credit (CRED) not significantly related to income inequality is that access to credit is not key variable that influences income inequality in Nigeria in the short-run within the studied period. The findings of this study agreed with Ozoh et al., (2022) who reported a non-significant negative relationship between access to credit and income inequality, but contradict that of Udo and Agbo (2019) who found a significant negative relationship between access to credit and income inequality.

From the empirical results, inflation rate (INF) has a non-significant negative impact on income inequality in the short-run. The non-significant negative effect of inflation rate (INF) on income inequality indicates that inflation rate (LINF) is not a critical factor that drives down income inequality in Nigeria within the studied period. Thus, in the short run income inequality will be decreased due to inflation though insignificantly. This result is in agreement Ibrahim and Okoh (2021) who reported a non-significant impact of inflation rate (INF) on income inequality. However, inflation rate (LINF) result from this study does not align with that of Chukwuma and Ogbonna (2021) who reported a significant relationship between inflation rate (INF) and income inequality in his study.

Finally, the ARDL result indicates financial development (FINDEV) have insignificant negative impact on income inequality (GINI) in the short-run. The implication of this finding is that financial development is not a key financial system development variable

that influences income inequality in Nigeria. This findings aligns with the submission Ozoh et al., (2022), who reported an insignificant negative relationship between financial development and income inequality; but disagreed with that of Udo and Agbo (2019) who concluded that financial development has significant negative influence on income inequality.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION AND RECOMENDATIONS

5.1 Introduction

This chapter focuses on the summary of findings from the empirical analysis as well as the conclusion. The policy recommendations necessitated by these findings are afterward presented.

5.2 Summary of Findings

In this study, the determinant of income inequality in Nigeria was investigated. The data for the study were obtained through secondary sources from the Central Bank of Nigeria Statistical Bulletin, World development Indicators and World inequality Database from 1981- 2023. The statistical analysis (descriptive statistics and correlation coefficient) was used to ascertain the initial characterization of the data while the Autoregressive Distributed Lag (ARDL) technique was used to capture the relationship between the selected independent variables and income inequality. The independent variables analyzed in this study are government expenditure, access to credit, inflation rate and financial development. Findings show the variables considered have no significant effect on income inequality in the short run. However, the ensuing specific results were established:

1) That government expenditure has insignificant negative impact on income inequality in the short-run.
2) That access to credit has an insignificant inverse effect on income inequality in the short-run.
3) That inflation rate has no significant effect on income inequality in the short-run.
4) That financial development exerts insignificant negative impact on income inequality in the short-run.

5.3 Conclusion

The role of government expenditure, access to credit, inflation rate and financial development in reducing income inequality cannot be underestimated, because it has been generally argued by experts in existing literature that these variables play a key role in reducing income inequality of a nation. Thus, proper focus on these variables is essential. Hence, the study empirically investigates the impact of government expenditure, access to credit, inflation rate and financial development on income inequality in Nigeria for the period 1981 to 2023. To examine the background characteristics of the data set we employed correlation and descriptive statistics, the Autoregressive Distributed Lag (ARDL) technique was used in the evaluation of the model stated in the study. Based on the findings of the study, we conclude that government expenditure, access to credit, inflation rate and financial development have no significant impact on income inequality in Nigeria in the short run. As such, it is important for key economic stakeholders, particularly the government, to drive initiatives

and implement policies that will enable these variables reduce income inequality in Nigeria.

5.4 Recommendation

The results obtained for the empirical analysis provides basis for making the following recommendations for policy decision.

(1) Government expenditure was observed to adversely and insignificantly affect income inequality in the short run. Policy makers should focus on expenditure that affects the low income earners in order to reduce income inequality in Nigeria.

(2) Relaxing borrowing constraints is advocated so that the people with less income and small firms can make use of private credit, which helps them to increase their earning opportunities and creating additional employment for the local community

(3) The government should embark on expansionary fiscal and monetary policies to boost aggregate output as a measure to curb inflation.

(4) Since financial development exerts a negative and insignificant impact on income inequality in the short run, government or policy makers should implement policies that will deepen the financial system in Nigeria in order to improve income distribution and thus reduces inequality. Furthermore, the ongoing

reforms in the financial sector should be strengthen so as to deepen the financial sector and improved access to finance.

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APPENDIX A

DATA FOR REGRESSION ANALYSIS

YEAR	GINI	FINDEV	CRED	INF	GEXP
1981	50.5350	10.39	6.15	20.81	47.42
1982	50.0060	10.59	7.16	7.70	75.4
1983	49.4780	11.14	7.35	23.21	111.11
1984	48.9490	12.12	7.51	17.82	165.34
1985	48.4200	11.87	6.96	8.52	230.29
1986	47.8910	12.02	7.70	1.90	289.09
1987	49.4340	11.27	8.62	0.17	345.85
1988	50.9770	12.15	8.66	6.23	413.28
1089	52.5210	11.06	7.33	6.66	488.15
1990	54.0640	9.59	6.78	11.63	628.95
1991	55.6070	12.78	7.01	0.55	878.46
1992	57.1500	12.26	6.42	2.19	1269.32
1993	56.1370	13.15	10.11	1.57	1505.96
1994	55.1230	13.02	8.11	0.26	1952.92
1995	54.1100	9.32	5.81	1.87	2131.82
1996	53.0960	8.46	5.84	4.05	2637.91
1997	52.0820	9.35	7.16	2.89	3797.91
1998	50.4230	10.16	7.32	11.90	5127.4
1999	48.7630	11.47	7.86	8.20	8643.43

2000	47.1030	12.44	7.51	14.50	9687.51
2001	45.4430	15.41	9.29	16.50	11101.46
2002	43.7830	13.09	8.09	12.20	12628.32
2003	42.1230	14.41	8.09	23.80	15503.41
2004	40.4630	11.76	7.84	10.00	18743.07
2005	39.8440	11.41	7.95	11.60	20415.61
2006	39.2240	12.50	7.54	8.50	20885.52
2007	38.6040	14.79	10.58	6.60	24259
2008	37.9840	21.63	19.77	15.10	28604.47
2009	37.3640	22.29	22.75	12.00	29774.43
2010	36.7440	20.01	18.96	11.80	34257.9
2011	36.1240	19.82	15.07	10.30	36038.01
2012	36.0510	21.35	18.31	12.00	40370.41
2013	35.9780	23.14	17.85	8.00	48462.07
2014	35.9060	22.65	18.59	8.00	47.42
2015	35.8330	21.94	19.64	9.60	75.4
2016	35.7600	23.65	20.50	18.68	111.11
2017	35.6870	24.90	19.55	15.40	165.34
2018	35.6140	23.07	17.54	11.40	230.29
2019	35.5410	23.52	17.63	11.98	289.09
2020	35.5410	23.36	18.82	15.80	345.85
2021	35.6321	22.93	18.65	15.63	413.28

2022	37.5468	23.95	19.28	21.34	488.15
2023	38.8234	27.09	22.56	28.92	438.24

GINI GEXP CRED INF FINDEV

	GINI	GEXP	CRED	INF	FINDEV
Mean	44.26703	8931.985	11.91209	10.87860	15.89023
Median	43.78300	1269.320	8.110000	11.40000	13.02000
Maximum	57.15000	48462.07	22.75000	28.92000	27.09000
Minimum	35.54100	47.42000	5.810000	0.170000	8.460000
Std. Dev.	7.480805	13158.37	5.770037	6.855877	5.662396
Skewness	0.179083	1.462378	0.574877	0.434496	0.479408
Kurtosis	1.471986	4.019533	1.579483	2.857137	1.599445
Jarque-Bera	4.413070	17.18862	5.983809	1.389542	5.161577
Probability	0.110081	0.000185	0.050192	0.499189	0.075714
Sum	1903.482	384075.4	512.2200	467.7800	683.2800
Sum Sq. Dev.	2350.423	7.27E+09	1398.320	1974.128	1346.635
Observations	43	43	43	43	43

Covariance Analysis: Ordinary
Date: 11/08/25 Time: 00:02
Sample: 1981 2023
Included observations: 43

Correlation Probability	GINI	GEXP	CRED	INF	FINDEV
GINI	1.000000 -----				
GEXP	-0.450988	1.000000			

	0.0024	-----			
CRED	-0.821109	0.272489	1.000000		
	0.0000	0.0771	-----		
INF	-0.474155	0.026518	0.403918	1.000000	
	0.0013	0.8660	0.0072	-----	
FINDEV	-0.835625	0.227107	0.870210	0.446600	1.000000
	0.0000	0.1430	0.0000	0.0027	-----

Dependent Variable: GINI
Method: ARDL
Date: 11/08/25 Time: 00:07
Sample (adjusted): 1983 2023
Included observations: 41 after adjustments
Maximum dependent lags: 4 (Automatic selection)
Model selection method: Akaike info criterion (AIC)
Dynamic regressors (4 lags, automatic): GEXP CRED INF FINDEV
Fixed regressors: C
Number of models evalulated: 2500
Selected Model: ARDL(2, 0, 0, 0, 0)
Note: final equation sample is larger than selection sample

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
GINI(-1)	1.830544	0.107143	17.08500	0.0000
GINI(-2)	-0.910228	0.114585	-7.943713	0.0000
GEXP	-1.08E-05	8.71E-06	-1.243428	0.2222
CRED	-0.004248	0.069202	-0.061390	0.9514
INF	-0.010356	0.017044	-0.607577	0.5475
FINDEV	-0.066513	0.078693	-0.845217	0.4039
C	4.879847	2.007836	2.430401	0.0205

R-squared	0.994536	Mean dependent var	43.97418
Adjusted R-squared	0.993572	S.D. dependent var	7.541027
S.E. of regression	0.604603	Akaike info criterion	1.985764
Sum squared resid	12.42854	Schwarz criterion	2.278325
Log likelihood	-33.70815	Hannan-Quinn criter.	2.092298
F-statistic	1031.452	Durbin-Watson stat	2.272653
Prob(F-statistic)	0.000000		

*Note: p-values and any subsequent tests do not account for model selection.

ARDL Bounds Test
Date: 11/08/25 Time: 03:19
Sample: 1983 2023
Included observations: 41
Null Hypothesis: No long-run relationships exist

Test Statistic	Value	k
F-statistic	1.381923	4

Critical Value Bounds

Significance	I0 Bound	I1 Bound
10%	2.45	3.52
5%	2.86	4.01
2.5%	3.25	4.49
1%	3.74	5.06

Test Equation:
Dependent Variable: D(GINI)
Method: Least Squares
Date: 11/08/25 Time: 03:19
Sample: 1983 2023
Included observations: 41

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(GINI(-1))	0.866417	0.106846	8.109013	0.0000
C	4.566657	2.032292	2.247047	0.0312
GEXP(-1)	-1.48E-05	9.28E-06	-1.591474	0.1208
CRED(-1)	0.040668	0.069106	0.588490	0.5601
INF	-0.020191	0.017444	-1.157467	0.2551
FINDEV(-1)	-0.091470	0.077686	-1.177422	0.2472
GINI(-1)	-0.073434	0.031031	-2.366447	0.0238

R-squared	0.718923	Mean dependent var	-0.272746
Adjusted R-squared	0.669321	S.D. dependent var	1.058483
S.E. of regression	0.608677	Akaike info criterion	1.999194
Sum squared resid	12.59659	Schwarz criterion	2.291755
Log likelihood	-33.98348	Hannan-Quinn criter.	2.105729
F-statistic	14.49388	Durbin-Watson stat	2.225985
Prob(F-statistic)	0.000000		

ARDL Cointegrating And Long Run Form
Dependent Variable: GINI
Selected Model: ARDL(2, 0, 0, 0, 0)
Date: 11/08/25 Time: 00:12
Sample: 1981 2023
Included observations: 41

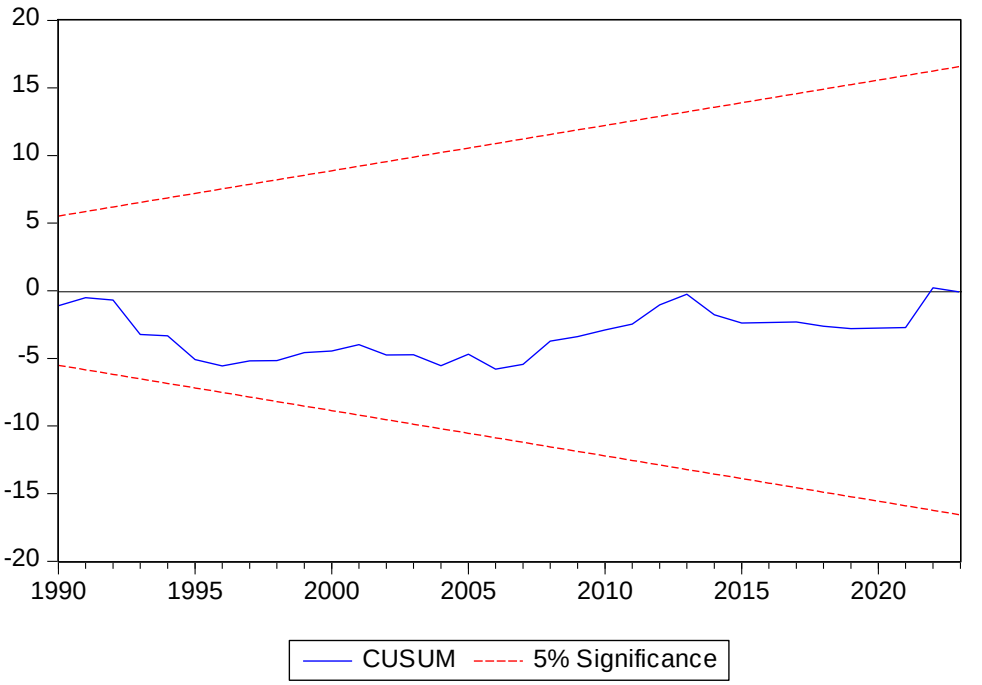
Cointegrating Form

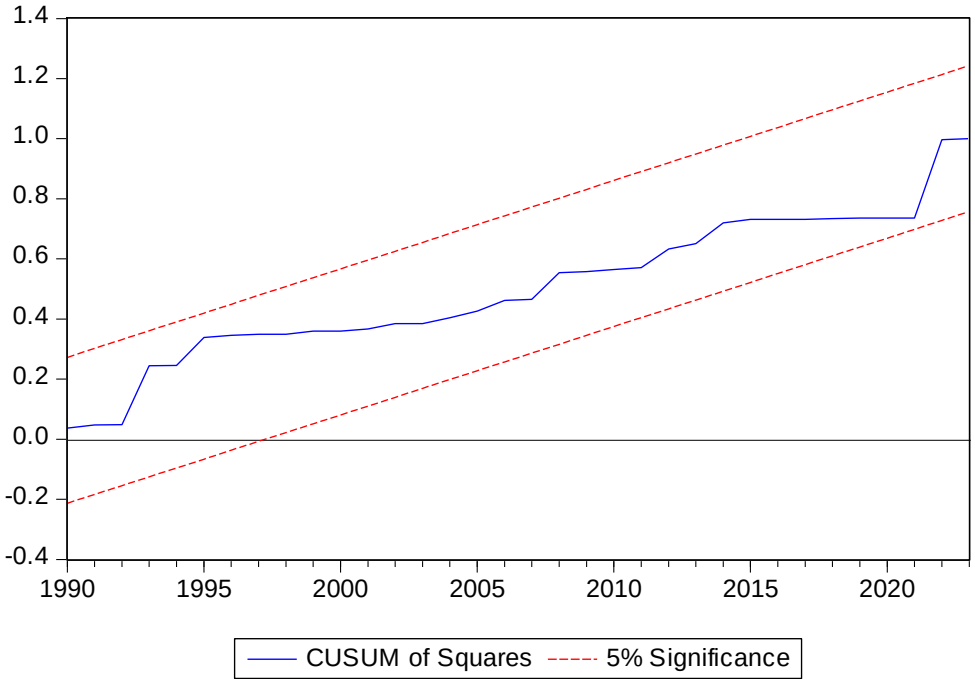
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(GINI(-1))	0.910228	0.114585	7.943713	0.0000
D(GEXP)	-0.000011	0.000009	-1.243428	0.2222
D(CRED)	-0.004248	0.069202	-0.061390	0.9514
D(INF)	-0.010356	0.017044	-0.607577	0.5475
D(FINDEV)	-0.066513	0.078693	-0.845217	0.4039
CointEq(-1)	-0.079683	0.030719	-2.593933	0.0139

Cointeq = GINI - (-0.0001*GEXP -0.0533*CRED -0.1300*INF -0.8347 *FINDEV + 61.2404)

Long Run Coefficients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GEXP	-0.000136	0.000105	-1.294633	0.2042
CRED	-0.053315	0.868263	-0.061404	0.9514
INF	-0.129962	0.211605	-0.614171	0.5432
FINDEV	-0.834711	0.904573	-0.922767	0.3626
C	61.240391	5.121355	11.957849	0.0000


20
15
10
5
0
-5
-10
-15
-20
1990
1995
2000
2005
2010
2015
2020
CUSUM
5% Significance


1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
-0.2
-0.4
1990
1995
2000
2005
2010
2015
2020
CUSUM of Squares
5% Significance