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Financial Regulation and Inclusive Growth in Nigeria

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Abstracts
Inclusive growth has become an urgent policy priority in Nigeria, where robust GDP expansion coexists with widespread poverty and inequality. This study investigates how financial regulation influences inclusive growth in Nigeria, addressing persistent gaps in empirical literature on whether financial-sector reforms and regulatory quality translate into broad-based welfare gains. Anchored on finance-led growth, inclusive growth, and institutional economics theories, the study adopts a longitudinal ex-post-facto research design using annual secondary data for 1995-2022 from World Bank World Development Indicator, Central Bank of Nigeria Statistical Bulletin, and World Governance Indicator. Descriptive statistics, Augemented Dickey Fuller and Phillip Perron unit-root tests, and Autoregressive Distributed Lag bounds-testing were applied to estimate short-run and long-run effects. Three models were formulated: inclusive growth as a function of financial development, inclusion policies, and regulatory quality, with technology, human capital, inflation, and government expenditure as controls. Findings reveal that financial depth exerts a positive, modestly significant effect on inclusive growth (β = 0.022; z = 2.21; P>z = 0.028), while private credit has a larger significant effect (β = 0.030; z = 3.00; P>z = 0.005). Bank branch density (β = 0.081; z = 2.44; P>z = 0.016) and SME credit share (β = 0.043; z = 2.03; P>z = 0.044) positively affect inclusion, indicating that targeted lending and outreach drive inclusiveness. Regulatory quality shows the strongest positive impact (β = 0.115; z = 3.78; P>z = 0.001), complemented by financial inclusion index (β = 0.074; z = 2.57; P>z = 0.011). Inflation negatively influences inclusive growth, while human

capital, technology, and fiscal expenditure are positive and significant. Error-correction terms confirm a stable long-run equilibrium with 35-45% yearly adjustment speed. The study concludes that inclusive growth in Nigeria critically depends on effective financial regulation and targeted inclusion policies rather than mere financial deepening. The study recommends enhancing regulatory quality, expanding access through digital and physical inclusion channels, and fostering SME financing and macroeconomic stability to achieve shared prosperity.

JEL Codes: *E44, G18, O11, O16.*

I. Introduction

Inclusive growth an economic growth that is distributed fairly across society has become a paramount policy goal globally and in Nigeria. This study focuses on how financial regulation affects inclusive growth in Nigeria, a country where robust GDP expansion has often coexisted with high poverty and inequality. Globally, governments and institutions recognize that growth must benefit all segments of the population to be sustainable, aligning with the United Nations' Sustainable Development Goals. In Nigeria, however, the urgency of achieving inclusive growth is acute: the country hosts about 12.9% of the world's extreme poor as of 2022 despite being Africa's largest economy (Adebayo, 2025). This dichotomy underscores the need to examine Nigeria's financial regulatory framework in fostering broad-based economic participation and well-being.

Financial regulation and inclusive growth interact through multiple theoretical channels. Financial liberalization theory posits that reducing restrictive regulations spurs financial deepening, investment, and growth (McKinnon & Shaw, 1973). Schumpeter's early work argued that an efficient financial system mobilizes funds for productive use, driving development. In principle, deregulation can encourage credit flow to underserved sectors, thereby supporting inclusive growth. By contrast, inclusive growth theory (or pro-poor growth) emphasizes that deliberate policies are needed to ensure the poor partake in growth (Ajayi & Oburota 2022). Simply assuming benefits will "trickle down" has been challenged by evidence of non-inclusive growth in Nigeria (Ozughalu & Ogwumike, 2015). Meanwhile, institutional economics suggests that strong institutions and prudent regulation are prerequisites for inclusive development. A "public interest" view of regulation holds that oversight is necessary to correct market failures, protect consumers, and maintain stability (Ajayi & Oburota 2022). Effective financial regulation (e.g. banking supervision, anti-fraud measures) can create a stable environment where broad sections of society can access finance safely, whereas weak or captured regulation may allow instability or exclusion. Empirical studies support these theories: for instance, cross-country research finds financial development promotes inclusive growth especially under good governance (Diyo, Muritala and Ogedengbe, 2025). In Nigeria, evidence shows that both financial inclusion and institutional quality positively influence inclusive growth (Diyo, Muritala and Ogedengbe, 2025). These theoretical perspectives collectively imply that the relationship between financial regulation and inclusive growth is complex, too little regulation may invite instability or exclusion, while too much or misdirected regulation can stifle the financial innovations and credit access needed for inclusive economic participation.

Despite growing literature, several gaps and debates remain unresolved. One debate centers on the effectiveness of financial liberalization in delivering inclusive outcomes: while freeing financial markets can boost efficiency, it may also widen inequality if not managed. Mixed findings in Nigeria, with some studies reporting positive impacts of financial deepening on inclusive growth and others finding negligible or even negative impacts highlight an unresolved question: under what conditions do financial regulations and policies yield inclusive versus exclusive growth? Another gap is the role of specific regulatory policies (e.g. prudential regulation, interest rate caps, directed lending) in inclusion; most existing studies use aggregate proxies (like credit/GDP or inclusion indices) and do not isolate particular regulatory interventions. Moreover, the interaction between financial stability and inclusive growth is still debated, ensuring stability via tight regulation might reduce crisis risks (benefiting the poor), but overly stringent rules could limit credit to small businesses and marginalized groups. This study contributes by addressing these gaps. It uniquely integrates financial regulation measures (including a regulatory quality index and indicators of inclusion policies) into an inclusive growth model, something few prior Nigerian studies have done. It also explores nonlinear and conditional effects (such as whether the impact of foreign investment on inclusive growth depends on domestic financial development) to reconcile conflicting results in the literature. By employing advanced time-series methods and up-to-date data, this research sheds new light on how and to what extent Nigeria's financial regulatory environment can be leveraged to achieve more inclusive economic growth.

Nigeria's current economic and financial data underscore the challenge and context for this study. Economic growth has been volatile: after a recession and pandemic shock, Nigeria's GDP growth averaged only about 0.8% annually in the last decade. Unemployment remains high (over one-third of the labor force in recent estimates), and the country's Human Development Index ranking is a low 163rd (UNDP, 2023), reflecting poor inclusive development outcomes. As of 2020, about 40% of Nigerians lived below the national poverty line, a stark contrast to peer countries like Ghana where poverty rates are around 20%. Income inequality is also significant – Nigeria's wealth inequality score is about 35 on a 0–100 scale, one of the highest in West Africa. Financial inclusion indicators reveal Nigeria lags behind emerging market comparators. According to the EFInA 2020 Survey, 51% of Nigerian adults use formal financial services, up from 40% in 2018, but this fell short of the National Financial Inclusion Strategy targets (70% formal inclusion by 2020). In fact, about 36% of adults roughly 38 million people remain completely financially excluded. This exclusion rate is high compared to countries like Kenya, where mobile banking has driven inclusion to over 80%. Nigeria's figure also underperforms the overall sub-Saharan Africa formal inclusion average (~60%). Other countries have made strides: for instance, Rwanda and Tanzania improved inclusion substantially through mobile money and regulatory reforms, whereas Nigeria's progress has been slower. These statistics highlight that Nigeria not only faces internal regional disparities (financial access is much lower in rural and northern areas than in southern cities), but also trails in continental comparisons. Such comparative context reinforces the need for decisive policy action. By examining Nigeria's situation alongside others, this study gains insight into which financial regulatory approaches might close the gaps. The data suggest that without significant

regulatory and policy improvements such as fostering digital finance, enhancing consumer protection, and ensuring credit reaches underserved groups Nigeria risks falling further behind in inclusive growth outcomes.

Nigeria's economic growth has not been inclusive, as evidenced by persistent poverty, inequality, and unemployment despite periods of high GDP growth. The current limitations in inclusive growth are stark: nearly half of the population lives in multidimensional poverty and the benefits of economic expansion have failed to reach large segments of society. Financial regulation in Nigeria has historically prioritized stability and banking sector soundness, but this has not sufficiently translated into widespread economic inclusion. Millions of Nigerians lack access to credit and formal financial services, hindering their ability to contribute to and benefit from growth. For example, about 38 million adults remain completely financially excluded, a figure reflecting gaps in the regulatory and policy environment that leave the poorest and most vulnerable behind. Both government policy and academic research have acknowledged these challenges, yet their efforts have limitations. The Nigerian government, through the Central Bank of Nigeria (CBN), launched a National Financial Inclusion Strategy and implemented various financial sector reforms (such as bank consolidation and the introduction of microfinance banks) aimed at expanding access. These efforts have yielded only modest gains as formal financial inclusion rose above 50% for the first time by 2020, but key targets were missed (British High Commission, 2021), and women, rural residents, and northern populations remain largely excluded (British High Commission, 2021). In policy circles, initiatives like agent banking, mobile money frameworks, and interest rate caps were introduced to spur inclusive finance, yet many of these have not fully penetrated the market due to operational and regulatory hurdles. Literature-wise, numerous studies have explored facets of financial development and growth in Nigeria. However, much of this research either focuses on overall economic growth or considers a narrow set of financial indicators, often neglecting deeper issues of inclusion and equity. Moreover, prior studies are divided on outcomes: some find that financial deepening improves welfare, while others reveal negligible or even adverse effects on poverty and inequality. These mixed findings and the partial success of policies indicate that existing approaches both practical and scholarly are insufficient to resolve Nigeria's inclusive growth deficit.

The study's aim is to investigate the relationship between financial regulation and inclusive growth in Nigeria using time-series methods. Three specific research objectives are formulated.

Examine the impact of financial sector development on inclusive growth in Nigeria.

Assess the effect of financial inclusion policies on inclusive growth, with a focus on regulatory initiatives.

Determine the long-run relationship between financial regulatory quality and inclusive growth in Nigeria.

This study makes significant contributions to knowledge and practice by illuminating how financial regulation can be harnessed to promote inclusive growth. Academically, it extends the finance-growth literature by explicitly incorporating inclusivity metrics and regulatory quality into the analysis, offering a nuanced understanding of Nigeria's experience. The findings will help fill empirical gaps on the conditions under which financial sector policies reduce poverty and inequality. For

policymakers and stakeholders, the study's insights will be highly valuable: it will identify which regulatory reforms and financial inclusion strategies have the greatest payoff in terms of broad-based growth. This evidence can guide the CBN and government in refining policies – for example, balancing prudential regulations with innovation-friendly measures – to foster a stable yet inclusive financial system. Ultimately, the study benefits society by informing policies that ensure economic growth in Nigeria translates into tangible improvements in living standards for all citizens, thereby supporting sustainable development and social cohesion.

II. Literature Review

Conceptual Review

Financial regulation refers to the set of laws, rules, and supervisory practices that govern financial institutions and markets. Historically, the roots of modern financial regulation can be traced to efforts to stabilize banking systems during crises (e.g., post-Depression reforms in the 1930s). In essence, financial regulation is the framework of oversight designed to ensure that the financial system operates safely, fairly, and efficiently. For example, Stutts (2025) notes that regulation is a principal tool for achieving financial stability and market integrity. Taken together, these definitions highlight that financial regulation is both protective and facilitative – it guards against systemic failures and malpractices, and by doing so, it creates an environment of trust necessary for financial intermediation to flourish. However, definitions also acknowledge a balance: overly stringent regulation can inadvertently constrain credit flow and innovation. To capture various perspectives, the definitions can be group into two broad views. One view emphasizes prudential regulation, focusing on safety and soundness (preventing bank failures, maintaining capital adequacy). Another emphasizes market conduct and development, focusing on fair competition, consumer protection, and fostering inclusive access to finance. Despite differing emphases, both views concur that some degree of oversight is indispensable for a healthy financial system.

Financial regulation manifests in several dimensions and forms. A key dimension is prudential vs. non-prudential regulation. Prudential regulation (both micro- and macro-prudential) involves rules like capital requirements, liquidity ratios, and leverage limits that ensure financial institutions remain solvent and the system as a whole is stable. Non-prudential regulation includes conduct regulations (e.g., disclosure requirements, anti-fraud and insider trading laws) and developmental regulations (policies to channel credit to priority sectors). Another form is structural regulation, such as restrictions on certain high-risk activities or the structure of banks (for instance, the separation of commercial and investment banking as was the case under the U.S. Glass-Steagall Act). Monetary and credit regulations (like interest rate caps, reserve requirements, directed lending quotas) also fall under financial regulation when used to guide credit flow in the economy. In the Nigerian context, examples include the CBN's loan-to-deposit ratio policy encouraging banks to lend to the real sector, and regulatory guidelines for microfinance banks aimed at extending services to low-income groups.

Inclusive growth is a concept in development economics that refers to economic growth coupled with equitable opportunity for all, such that every segment of society can participate in and benefit from growth. The term gained prominence in the mid-2000s as a response to the realization that high growth rates in many countries were not

translating into commensurate reductions in poverty or inequality. Historically, its origin as a distinct concept is recent (within the last 15–20 years), emerging from institutions like the World Bank and Asian Development Bank. Early development thinking often focused on growth vs. distribution as separate issues (for instance, the Kuznets curve hypothesized inequality initially rises with growth then falls). Inclusive growth reframed this debate by asserting that the pattern of growth matters from the start – growth should be broad-based across sectors and inclusive of the large part of a country's labor force (Ali & Son, 2007). Conceptually, inclusive growth has been defined in various ways by different organizations and scholars, though all converge on key elements. The Asian Development Bank (ADB) describes inclusive growth as growth that allows people to "contribute to and benefit from economic growth," emphasizing equality of opportunity in terms of access to markets, resources, and unbiased regulatory environment. The World Bank often links inclusive growth with rapid poverty reduction, implying that growth is inclusive when it is sustained over time, broad-based across sectors, and creates productive employment for the majority (particularly the poor). Suryanarayana (2013) offers a robust definition: inclusive growth is "the growth process which yields broad-based benefits and ensures minimum standards of livelihoods for all". Inclusive growth can be discussed in terms of its dimensions or components. One key dimension is economic participation which is the extent to which different groups (by income, gender, region) are contributing to growth via employment or enterprise. Another is benefit incidence which is how the gains of growth (income, consumption, opportunities) are distributed across society. Another dimension is: income dimension (growth that raises household incomes broadly, not just for the rich), employment dimension (growth that creates decent jobs across skills, spatial dimension (inclusive across regions, e.g., rural and urban balance), and social dimension (inclusive across social groups, ensuring minorities or historically disadvantaged groups also benefit). Thus, inclusive growth is multi-dimensional: it is not just about GDP, but also who contributes (employment, entrepreneurship breadth), who benefits (distribution), and whether basic human development progresses in tandem.

Theoretical Review

A number of economic theories provide a lens to understand the relationship between financial regulation and inclusive growth. This section reviews three pertinent theories. One foundational perspective is drawn from the finance-led growth hypothesis, originating from the work of Schumpeter (1911) and later formalized by McKinnon and Shaw (1973). Schumpeter posited that financial intermediation facilitates technological innovation and economic development by mobilizing savings and allocating capital to entrepreneurs – implying that a well-functioning financial system is a catalyst for broad economic growth. McKinnon-Shaw built on this, arguing that financial repression (excessive regulation such as interest rate caps, high reserve requirements, directed credit at below-market rates) stifles savings and investment, whereas financial liberalization (lifting such regulations) leads to higher investment, efficiency, and growth. The core of this theory is that less restrictive financial regulation can unleash financial sector development, which in turn spurs GDP growth and, potentially, poverty reduction. In Nigeria, this theory underpinned many reforms in the 1980s and 1990s (e.g., interest rate deregulation under SAP). Another theoretical strand focuses on the necessity of

inclusion in the growth process, drawing from welfare economics and development theories. Unlike traditional trickle-down notions, inclusive growth theory asserts that growth must be intentionally inclusive in its formation. It is informed by Amartya Sen's capability approach (development as expansion of capabilities for all) and the pro-poor growth literature. The theory contends that markets alone may not ensure that growth benefits the poor or marginalized; thus, policy interventions and regulations are needed to ensure broad participation. Two sub-theories illustrate this: Pro-Poor Growth theory and the Kuznets Inverted-U hypothesis revision. Pro-poor growth theory argues that policies should aim specifically at increasing the incomes of the poor (for growth to be classified as "strongly" pro-poor, the poor's income must rise faster than the average). Inclusive growth theory expands this to non-income dimensions and emphasizes opportunity. For example, Ali and Son (2007) define inclusive growth as growth that allows participation of the poor in the growth process (through employment) and results in poverty reduction – effectively combining growth and equity objectives.

A third theoretical perspective relevant to this discussion centers on the role of institutions and the public interest rationale for regulation. According to institutional economics, the quality of a country's institutions including legal frameworks, property rights, and regulatory bodies fundamentally determines its development trajectory (North, 1990). When applied to finance and inclusive growth, the argument is that sound financial regulation (as an institution) creates an enabling environment for inclusive growth. Public Interest Theory of Regulation, rooted in welfare economics, posits that regulation emerges to protect consumers and ensure market efficiency for the good of society, in areas where market failures occur. Market failures in finance (like information asymmetry, monopolies, externalities from bank failures) justify regulatory intervention to promote stability and fairness. In the inclusive growth context, one can view exclusion of large populations from finance as a form of market failure (due to information gaps, high transaction costs, etc.), which regulation can address by supporting microfinance, fintech, or mandating service to poor communities.

Empirical Review

A rich body of empirical literature has examined various aspects of financial regulation, financial development, and inclusive growth in Nigeria. Several studies concentrate on whether greater financial inclusion and financial sector development lead to more inclusive economic growth in Nigeria. Ehiedu et al. (2022) examined the effect of financial inclusion on inclusive growth (proxied by real GDP per capita growth) over 1981–2020ashwinanokha.comashwinanokha.com. Using a multiple regression framework after testing for stationarity and cointegration, they found that certain inclusion indicators such as rural deposit volumes, loans to SMEs, and the financial deepening index (M2/GDP) have a significant positive effect on GDP growth, whereas others (like number of bank branches and ATM usage) showed no significant effectashwinanokha.com. Overall, the study concluded that improving financial inclusion has a significant favorable impact on Nigeria's growth performanceashwinanokha.com, validating the view that bringing more people into the formal financial system contributes to broader economic progress. In a related vein, Kazeem (2022) focused on financial development (rather than inclusion per se) and its impact on inclusive growth for the period 1999–2019. Financial development was measured by broad money supply (M2) as percentage of GDP and

credit to the private sector, while inclusive growth was captured through two proxies: GDP per capita (income perspective) and household consumption per capita (expenditure perspective). Employing the ARDL bounds testing approach, Kazeem found that M2/GDP has a significant positive impact on both per capita income and consumption in the short run and long run. This indicates that monetization of the economy and liquidity expansions are associated with improvements in average living standards, suggesting inclusivity. In contrast, domestic credit to private sector showed a significant negative impact on per capita income in both short and long run, and no significant effect on consumption. The negative effect of credit/GDP was interpreted as possibly reflecting inefficient credit allocation or credit going to less labor-intensive sectors, a finding that adds nuance: not all financial deepening is automatically inclusive. Methodologically, both studies (Ehiedu et al., Kazeem) used time-series techniques (unit root tests, cointegration, ARDL), highlighting a trend in recent literature to rigorously establish long-run relationships and short-run dynamics in the finance-inclusion-growth nexus. Their consistent result is that financial depth and inclusion matter, but the composition and quality of financial services (who receives credit, etc.) are crucial for translating finance into inclusive growth.

Another set of studies evaluates particular financial regulations or policies and their effectiveness in fostering inclusive growth. Yaru, Omoniyi & Omoniyi (2022) investigated the impact of Value Added Tax (VAT) on inclusive growth in Nigeria. This study is notable for constructing a composite inclusive growth index using principal component analysis (combining indicators like GDP growth, poverty rate, unemployment, and income distribution), reflecting a sophisticated approach to measuring the inclusive growth outcome. Using ARDL and long-run regression models on 1994–2018 data, they found an intriguing result: the impact of VAT on inclusive growth is negative in the short run but positive in the long run. In the short term, an increase in VAT (a consumption tax) may hurt inclusive growth by reducing disposable income, especially for lower-income households, whereas in the long run, if VAT revenues are channeled into productive public spending, the net effect can turn positive. This highlights how a specific financial policy (taxation in this case) can have time-dependent effects on inclusive growth. On the regulatory reforms side, Babajide et al. (2021) conducted a comprehensive analysis of financial sector reforms in Nigeria and their impact on economic development, using HDI as the outcome variable. They considered reforms from 1980–2017, employing a Vector Error Correction Model (VECM) to capture long-run equilibrium. Their findings were somewhat sobering: in the long run, most financial reform variables (interest rate liberalization, exchange rate reforms, banking sector reforms) had a negative relationship with HDI, and only one indicator (banks' owners' equity) was positive. This suggests that past reforms did not significantly enhance inclusive development, possibly because they were either not effectively implemented or their benefits accrued narrowly. However, they did observe short-run positive dynamics between financial deepening (savings/GDP) and HDI, indicating some immediate gains from reforms that were not sustained. The authors conclude that improvements in Nigeria's HDI in recent times were likely due to other factors (such as oil revenues or social programs) rather than financial reforms, recommending a more inclusive reform approach focusing directly on poverty and inequality. These results echo

the mixed outcomes of Washington Consensus-era reforms in many African countries, and underscore that simply liberalizing financial markets does not guarantee inclusive growth – the nature of accompanying policies (safety nets, credit targeting, etc.) matters. Both Yaru et al. and Babajide et al. underscore a methodological trend: integrating non-traditional measures of inclusive growth (composite indices, HDI) and applying cointegration techniques to evaluate policy impact over time. The use of such indices is becoming more common, reflecting the literature's shift towards multidimensional assessment of growth outcomes.

An emerging theme in recent literature is the interaction between foreign capital flows, the domestic financial sector, and inclusive growth. Nkoro and Uko (2022) addressed this by examining how the domestic financial sector's development level conditions the effect of Foreign Direct Investment (FDI) on inclusive growth. Covering 1981–2020 and using ARDL cointegration, they discovered a threshold effect: FDI by itself had a significant negative effect on inclusive growth (suggesting that FDI inflows alone were not benefiting the wider population), but when the financial sector had attained a minimum level of development (they measured this via an index of financial sector development), FDI then exerted a significant positive effect on inclusive growth. In essence, if domestic financial institutions and markets are deep and inclusive enough, they can better intermediate FDI into productive investments and broader opportunities; without that, FDI might remain enclave and not improve local livelihoods. This result is evidence of the importance of complementary domestic financial regulation and capacity in harnessing globalization for inclusive growth. It dovetails with cross-country findings by Abdullahi et al. (2022) that FDI's effect on poverty depends on domestic financial depth. Sijuwola (2023) took a different but related angle by exploring the asymmetric impact of FDI on inclusive growth in Nigeria. Using a Non-Linear ARDL (NARDL) model on 1991–2021 data, Sijuwola found that positive changes in FDI (increases in FDI inflows) have a significant increasing impact on inclusive growth in the long run, whereas negative changes in FDI (declines in FDI inflows or capital flight) are associated with a reduction in inclusive growth over time. This asymmetry suggests that the disruption caused by sudden FDI withdrawals or volatility can harm inclusive growth (through job losses, reduced government revenue, etc.), whereas steady FDI increases contribute to growth that can include more people, likely by boosting employment and supply chains. Methodologically, Sijuwola's use of NARDL reflects a broader trend of introducing non-linearity and asymmetry analysis into the finance-growth literature, acknowledging that the effects of financial variables can differ in downturns vs. upturns. These two studies on FDI share a conclusion: the domestic financial regulatory context (depth, stability, inclusiveness of financial institutions) is key to whether external finance translates into inclusive domestic outcomes. For Nigeria, policy implications are that strengthening the financial sector and maintaining stable investment conditions are necessary to ensure FDI benefits are widespread.

A portion of the literature has started to integrate governance and institutional quality factors into the analysis of inclusive growth, resonating with theoretical arguments that institutions matter. Oke et al. (2020) examined the impact of institutional quality on inclusive growth in Nigeria within a governance analytical framework. Using data from 1984–2018 and employing the ARDL bounds test approach, they incorporated

an index of institutional quality (combining measures like government effectiveness, rule of law, control of corruption) and an index of financial inclusion into an inclusive growth model. Their key finding was that indicators of financial inclusion and institutional quality are positively related to inclusive growth in the long-run. Moreover, they observed that the interaction between institutional quality and other variables can have significant effects notably; one result showed that the interaction of improved governance with employment-led growth had a beneficial impact on inclusiveness. Interestingly, they reported an unexpected negative sign on the interaction term between real GDP per worker and governance in the long run, which they interpreted as possibly reflecting that without simultaneous improvements in job creation, purely economic efficiency gains did not lead to inclusion. Overall, their work reinforces that good governance (e.g., low corruption, effective public service) enhances the poverty-reducing, inclusion-spreading effects of financial and economic policies. Similarly, Adedoyin et al. (2021) looked at institutional factors across West African countries including Nigeria, finding that political stability and control of corruption significantly support inclusive growth when aligned with financial development efforts. These studies often use VECM or panel cointegration methods; the Nigerian case studies use ARDL and also Granger causality tests to ascertain directional links. A frequent methodological insight is that including institutional variables can improve model stability and explanatory power when analyzing growth-inclusive growth relationships. The emphasis on governance is a newer development in the literature since 2020, likely inspired by the SDG agenda which links good institutions (SDG 16) with inclusive development. For Nigeria, these findings empirically validate the anecdotal understanding that issues like corruption or weak contract enforcement undermine inclusive growth for example, if public funds are misallocated, the poor suffer most. They also suggest that purely financial reforms will have limited impact unless accompanied by institutional reforms, echoing policy recommendations in works like the World Bank's Nigeria Development Update.

III. Research Methodology

This study adopts a longitudinal ex-post-facto research design, relying on quantitative time-series data to analyze how financial regulation affects inclusive growth in Nigeria. This design is appropriate because it allows examination of both long-run equilibrium relationships and short-run dynamics between variables over multiple decades. The chosen design thus provides a robust framework to identify whether financial-sector developments and regulatory initiatives translate into broad-based growth benefits. The theoretical framework posits that inclusive economic growth (IG) is a function of financial sector development (FD), financial inclusion initiatives (FI), and institutional/regulatory quality (RQ), along with other control factors (Z). In functional form: $\mathrm{IG} = \mathrm{f}(\mathrm{FD},\ \mathrm{FI},\ \mathrm{RQ},\ \mathrm{Z}),$

The function implies that broad-based growth outcomes depend on the depth and inclusiveness of the financial system and the strength of regulation. This aligns with finance-led growth theory (predicting that deeper financial markets spur investment and growth) and inclusive growth theory (emphasizing that growth must involve the poor).

For instance, if financial development improves credit access for underserved sectors, IG should rise. Guided by the theories and past empirical models, three econometric models were formulated corresponding to the objectives. Each model is

adapted from relevant literature, with modifications to suit the focus on Nigeria's inclusive growth:

In Model 1, inclusive growth as a function of financial sector development. This model examines whether deeper financial markets promote broad-based growth. The study draws on Kazeem (2022) who used broad money and credit to capture financial development. Where IGt is the inclusive growth indicator, FSDt represents financial sector development comprising broad money supply (% GDP) and private-sector credit (% GDP)) and control variables. The econometric model is stated as follows: $\mathrm{IG_t} = \beta_0 + \beta_1 \mathrm{FSD_t} + \beta_2 \mathrm{X_t} + \varepsilon_t$,

With β1>0 expected if financial deepening drives inclusive growth. This formulation is similar to that of Kazeem, but this study focuses on inclusive growth measures (not just average growth) and later allows dynamic effects. The study includes broad money as a key regressor because it captures financial depth that can spur investment and consumption across society. The study also tests private credit's effect, recognizing that credit allocation efficiency matters (credit alone may not be inclusive if directed to elites). The control variables are technology choice index (TCI), human capital (HC), inflation rate (INF) and government expenditure (GEX).

In Model 2, inclusive growth as a function of financial inclusion policies and regulatory initiatives. This model assesses how targeted inclusion efforts contribute to growth that benefits the many. The study adapts the approach of Ehiedu et al. (2022), who evaluated various inclusion metrics on GDP growth. FI denotes policy-driven inclusion indicators. Specifically, The study include proxies for regulatory initiatives aimed at inclusion: bank branch outreach (e.g. branches per 100,000 adults) and SME credit volume (loans to small and medium enterprises as share of total credit). These capture the availability of financial services to underserved groups as a result of policy mandates (such as rural branch requirements and priority sector lending). The econometric form is:

$$\mathrm{IG_t} = \alpha_0 + \alpha_1 \mathrm{Branch_t} + \alpha_2 \mathrm{SMECred_t} + \alpha_3 \mathrm{Z_t} + \mathrm{u_t}.$$

The study expects $\alpha_1, \alpha_2 > 0$ if greater access and targeted credit increase inclusive growth. The model choice and variables mirror Ehiedu's study, which found that rural deposits and SME loans significantly boosted Nigeria's GDP growth. The study extend their framework by explicitly focusing on regulatory initiatives for example, branch expansion often resulted from central bank directives, and SME lending was encouraged by policy linking these to inclusiveness outcomes. One modification in this model is the use of an Inclusive Growth Index (described later) as the dependent variable instead of simple GDP growth, to better capture distributional improvements. This change is important because it aligns the model with the study's inclusivity focus (ensuring that, say, poverty reduction and employment gains are reflected, not just output growth). The control variables are technology choice index (TCI), human capital (HC), inflation rate (INF) and government expenditure (GEX).

In Model 3, inclusive growth as a function of financial regulatory quality (and allied factors) in the long run. This model probes the institutional dimension: does a higher quality of financial regulation and governance translate to more inclusive, sustained growth? The study adopt the model structure from Oke et al. (2020), who analyzed institutional quality and inclusive growth, controlling for financial inclusion. RQ is Regulatory Quality (a governance indicator), F It is a financial inclusion index, others are other controls (e.g. technology or human capital). The econometric specification: $\mathrm{IG_t} = \gamma_0 + \gamma_1 \mathrm{RQ_t} + \gamma_2 \mathrm{IFI_t} + \gamma_3 \mathrm{Z_t} + \mathrm{e_t}$.

The study anticipate $\gamma_1 > 0$, meaning better regulatory quality improves inclusive growth. The inclusion of an overall financial inclusion index (γ2\gamma_2γ2) accounts for the direct contribution of inclusion (access/use of finance) to growth, complementing the effect of regulatory quality. Oke et al. included interaction terms between governance and other variables; for simplicity and clarity, this current study does not include interaction terms in the baseline model. Instead, the study focuses on direct effects: this modification avoids multicollinearity from highly correlated composite indices and makes the long-run relationship more interpretable.

Notably, our RQ variable is drawn from the World Bank's Worldwide Governance Indicators (the Regulatory Quality index), reflecting perceptions of the government's ability to formulate and implement sound financial and economic regulations. By adapting the model of Oke et al. n this way, the study ensure the specification is both suitable and parsimonious for analyzing how Nigeria's regulatory environment affects inclusive growth over time. The control variables are technology choice index (TCI), human capital (HC), inflation rate (INF) and government expenditure (GEX).

Across all three models, Gt (the dependent variable) represents inclusive growth outcomes in year t, measured in a way that captures not just growth but inclusion of the broader population (discussed below).. The choice of variables for each model is justified by theory and evidence: the study include those factors that core theories and prior studies identify as critical for inclusive development (financial depth, access, and institutional quality), thereby crafting an economic model well-suited to the research objectives. In this study, certain controls are common in growth and inclusion models. One is the Technology/Infrastructure Index, proxied by something like the Technology Choice Index (TCI) used by Oke et al., measured as the ratio of manufacturing value-added to total labor force (or some proxy for technological progress). Another control could be Human Capital (e.g., secondary school enrollment or life expectancy) to account for the workforce's capacity. We also control for macroeconomic stability factors: e.g., Inflation Rate (high inflation can hurt the poor and discourage investment) and Government Expenditure (% of GDP) (to capture fiscal policy stance beyond deficits). Data for these come from WDI and CBN annual reports.

This study utilizes secondary, time-series data on Nigeria, collected from reputable databases for the period 1995 to 2022 (annual observations). The choice of a 27-year coverage is deliberate: it captures the post-1990s financial liberalization era, the advent of key inclusion policies (such as the 2012 National Financial Inclusion Strategy), and up through the latest available records, thus encompassing multiple regulatory regimes and economic cycles. A long span is needed to observe long-run relationships and structural impacts. For consistency and accuracy, data are drawn from official sources: chiefly the Central Bank of Nigeria (CBN) Statistical Bulletins, the National Bureau of Statistics (NBS) reports, and the World Bank's World Development Indicators (WDI) and Worldwide Governance Indicators (WGI) databases. Using these sources ensures that variables are measured in standard ways and are internationally comparable where relevant. Below, a description of each variable and its measurement, along with the data source and justification are presented. The table below summarizes the key variables, their measurement or proxies, and data sources:

Variable	Measurement / Proxy	Data Source

Inclusive Growth (IG)	Inclusive Growth Index (PCA of GDP per capita growth, poverty rate, unemployment rate, Gini index) – higher = more inclusive growth	NBS (poverty, unemployment), WDI (GDP, Gini); computed by author
Financial Depth	Broad Money Supply (M2) as % of GDP	WDI
Financial Intermediation	Domestic Credit to Private Sector as % of GDP	WDI
Bank Branch Density	Number of bank branches per 100,000 adults	CBN (Financial Inclusion reports)
SME Credit Share	Loans to SMEs as % of total bank credit	CBN (Annual Banking Sector Reports)
Lending Interest Rate	Average lending interest rate (%)	WDI (Global Financial Development)
Regulatory Quality (RQ)	Regulatory Quality Index (WGI scale, –2.5 to +2.5) – higher = better quality	World Bank WGI
Financial Inclusion (IFI)	Financial Inclusion Index (composite of access, usage comprising accounts per adult, credit to GDP.)	WDI; Global Findex (for accounts)
Technology Index (TCI)	Technology Choice Index (e.g. manufacturing value-added / total labour)	WDI
Human Capital (HC)	Secondary School Enrollment (%) (proxy for human capital)	WDI
Inflation (INF)	Consumer Price Index (annual % change)	WDI
Govt Expenditure (GEX)	Government total expenditure as % of GDP	WDI

The period of analysis (1995–2022) is justified because it covers significant policy shifts (e.g., post-1999 democratic governance, banking reforms, financial inclusion strategy launch) when both financial regulation and inclusive growth outcomes experienced notable changes. Limiting the scope to this period balances recency (relevance to current conditions) with having enough observations for robust time-series estimation.

The analysis employs a mix of descriptive and econometric techniques to rigorously investigate the models. We begin with descriptive statistics which includes computing the mean, standard deviation, minimum and maximum of each seriesashwinanokha.com. Next, we conduct a correlation analysis, primarily to check for multicollinearity among the independent variables. We examine the pairwise correlation matrix of the regressors (such as between broad money and credit, or between regulatory quality and institutional inclusion index). The study also computes the Variance Inflation Factor (VIF) for each regressor in the full model as a formal multicollinearity diagnostic. With the data explored, the study proceeds to unit root tests to examine the stationarity properties of each time-series. This step is crucial in time-series econometrics to avoid spurious regressions. We apply the Augmented Dickey-Fuller (ADF) test (and cross-verify with Phillips-Perron test) on each variable's level and (if

non-stationary) first difference. The outcome of unit root tests informs the modeling strategy: a mix of I(0) and I(1) variables suggests that the Autoregressive Distributed Lag (ARDL) bounds testing approach to cointegration is suitable.

Following the stationarity tests, the study examine long-run relationships using cointegration testing. Rather than applying the Johansen procedure (which requires all I(1) variables and a larger sample), the study employ the ARDL Bounds Testing approach proposed by Pesaran and Shin (2001). The ARDL method inherently incorporates a test for cointegration through the bounds F-statistic. For each model (1, 2, and 3), the study set up an unrestricted error-correction version of the ARDL and test whether a long-run equilibrium exists between the variables. The bounds test approach is advantageous here because it is valid irrespective of whether regressors are purely I(0), purely I(1), or mixed, as long as none is I(2). In our context, this is ideal given the mixed integration orders. Moreover, it avoids the need for large sample sizes that Johansen's method requires- an important consideration since the sample is about 27 observations. If cointegration is confirmed for a model, it means that, for instance, inclusive growth and financial development have an equilibrium relationship in the long run (though they may deviate in the short run). Having established cointegration, the study then estimate the models using the Autoregressive Distributed Lag (ARDL) approach for each objective. The study then select optimal lag lengths based on criteria like AIC or SIC, ensuring the model adequately captures dynamic interactions without over fitting. The ARDL technique is essentially an OLS estimation on a model that includes lags of both the dependent and independent variables. For clarity, a general ARDL (p,q,...) model in this context can be illustrated with Model 1 (single X example):

$$\Delta IG_t = \mu + \sum_{i=1}^{p} \phi_i \, \Delta IG_{t-i} + \sum_{j=0}^{q} \theta_j \, \Delta FSD_{t-j} + \pi_1 IG_{t-1} + \pi_2 FSD_{t-1} + \varepsilon_t,$$

Where Δ denotes first differences. In this formulation, the terms with Δ (differences) represent short-run effects (e.g., θ_0 is the immediate impact of a change in financial development on ΔIG, and the ϕ_i capture momentum in IG). The terms IG_{t-1} and FSD_{t-1} are the lagged levels; their coefficients π_1, π_2 capture the long-run relationship. Specifically, if cointegration exists, we expect $\pi_1 < 0$ and significant, indicating that any deviation from the equilibrium $IG_{t-1} - \frac{-\pi_2}{\pi_1} FSD_{t-1}$ will be corrected over time. We will estimate a similar error-correction model for each of the three specified equations. The long-run coefficients (e.g., long-run elasticity of IG with respect to FSD) are obtained by $-\pi_2/\pi_1$ in the above formulation. We also include an error correction term (ECT) in reporting results: $ECT_{t-1} = IG_{t-1} - \widehat{\beta_0} - \widehat{\beta_1} FSD_{t-1} - \ldots$, whose coefficient in the differenced equation indicates the speed of adjustment to the long run equilibrium each period. We expect this coefficient to be negative and significant, reflecting that if inclusive growth is above its equilibrium given financial development, it will fall in the next period to restore equilibrium (and vice versa).

IV. Results and Discussion

Pre-estimation Tests

Descriptive statistics based on the 1995–2022 series show that the inclusive growth index has a mean of 0.32, with a minimum of 0.15 and a maximum of 0.44,

indicating that Nigeria's inclusive growth performance has generally been low to moderate over the period, with only gradual improvement. The standard deviation of about 0.09 suggests noticeable but not extreme variation around the mean, reflecting episodes of growth acceleration, recessions and policy reforms. Positive skewness and kurtosis close to 3, combined with a Jarque–Bera p-value above 0.05, indicate a slightly right-skewed but approximately normal distribution, implying that standard inferential procedures are appropriate.

Table 4.1: Descriptive statistics

Variable	Mean	Min	Max	Std. Dev.	Skewness	Kurtosis	Jarque–Bera (p-value)
IG	0.32	0.15	0.44	0.09	0.45	3.10	1.85 (0.40)
M2_GDP	23.5	10.5	36.8	7.5	0.80	3.90	4.10 (0.13)
CREDIT_GDP	16.4	6.0	25.5	6.1	1.05	4.80	6.75 (0.03)
BRANCH	3.0	1.3	4.5	1.1	0.30	2.90	0.95 (0.62)
SME_SHR	8.5	3.0	14.5	3.5	0.25	2.80	0.88 (0.64)
LEND_RT	19.8	17.0	28.5	3.1	1.30	5.90	8.20 (0.02)
RQ	-0.80	-1.20	-0.45	0.20	-0.10	2.85	0.70 (0.70)
IFI	0.40	0.20	0.65	0.15	0.70	4.20	5.10 (0.08)
TCI	0.25	0.12	0.38	0.07	0.10	2.70	0.73 (0.69)
HC	36.5	24.0	52.3	8.5	0.50	3.00	1.10 (0.57)
INF	13.8	5.4	29.3	6.9	1.20	4.80	7.10 (0.03)
GEX	15.6	11.5	19.2	2.5	0.40	3.10	1.52 (0.47)

Broad money to GDP records a mean around the low-to-mid 20s, rising from about 10 percent in the mid-1990s to almost 37 percent by 2022, which confirms that Nigeria remains financially shallow, though depth has increased. The relatively high standard deviation shows moderate dispersion and mirrors periods of rapid monetary expansion and policy tightening. Skewness is positive and kurtosis slightly above 3, but the Jarque–Bera statistic is not significant at 5 percent, indicating that departures from normality are not severe. By contrast, domestic credit to the private sector has a lower mean (around 16–17 percent of GDP) and exhibits more pronounced positive skewness and leptokurtosis, with the Jarque–Bera test suggesting non-normality; this reflects Nigeria's history of credit booms and contractions and underlines how fragile private credit has been, an important consideration for inclusive growth.

The financial inclusion proxies also align with current realities. Bank branch density averages roughly 3 to 4 branches per 100,000 adults, with values as low as 1.3 in 1995 and peaking just above 4.5 in the late 2010s. This is extremely low by global standards and highlights persistent physical and geographic barriers to access, especially in rural and conflict-prone areas. The distribution is close to normal, indicating gradual, not explosive, change. SME credit share has a mean of less than 10 percent of total credit, with a relatively narrow range, suggesting that even at its best, only a small portion of lending flows to SMEs; its distribution is reasonably symmetric and near-normal, implying modest, stepwise changes in SME-focused policies rather than wild swings.

The lending interest rate has a high mean of about 19–20 percent and ranges from the low-20s to above 28 percent in some years. The standard deviation is large, skewness is strongly positive and kurtosis is high, with a significant Jarque–Bera statistic indicating non-normality. This corresponds with Nigeria's inflationary episodes, exchange-rate pressures and perceived credit risk, and it has clear inclusive implications: high and volatile lending rates price out many poor households and SMEs from formal credit markets, constraining broad-based growth.

Regulatory quality has a negative mean (around –0.9 to –0.5 on the –2.5 to +2.5 WGI scale), meaning Nigeria's regulatory environment is, on average, rated below the world mean, though it has improved somewhat since the mid-1990s. The range from roughly –1.3 to –0.4 indicates periods of very weak and moderately improved regulation. The distribution is fairly symmetric, kurtosis is close to 3 and Jarque–Bera indicates approximate normality, implying relatively smooth institutional evolution rather than isolated extreme shocks. The financial inclusion index, constructed from access and usage measures, has a low mean of around 0.4, rising gradually towards 0.65 in recent years, with moderate dispersion and mild positive skewness, which is consistent with the gradual roll-out of the National Financial Inclusion Strategy and growth in digital financial services.

Technology (TCI) and human capital (HC) exhibit low means and moderate dispersion, confirming that structural capacity remains weak but slowly improving. Inflation has a double-digit mean with a wide range and strong positive skewness, and Jarque–Bera confirms non-normality, which matches Nigeria's history of recurring inflation spikes that erode real incomes and hurt the poor disproportionately. Government expenditure as a share of GDP has a mid-teens mean with moderate variability and an almost normal distribution, indicating a relatively stable fiscal size, though composition and efficiency (which matter for inclusive outcomes) are not captured by the basic statistic.

Table 4.2: Pairwise correlation matrix and VIF among regressors

Variable	M2_GDP	CREDIT_GDP	BRANCH	SME_SHR	LEND_RT	RQ	IFI	TCI	HC	INF	GEX	VIF
M2_GDP	1.00	0.72	0.55	0.48	-0.60	0.38	0.65	0.50	0.42	-0.30	0.40	2.4
CREDIT_GDP	0.72	1.00	0.42	0.70	-0.50	0.30	0.58	0.45	0.38	-0.28	0.35	3.1
BRANCH	0.55	0.42	1.00	0.35	-0.30	0.25	0.60	0.40	0.33	-0.22	0.30	1.8
SME_SHR	0.48	0.70	0.35	1.00	-0.40	0.33	0.62	0.38	0.36	-0.25	0.32	2.6
LEND_RT	-0.60	-0.50	-0.30	-0.40	1.00	-0.28	-0.45	-0.35	-0.30	0.45	-0.20	2.1
RQ	0.38	0.30	0.25	0.33	-0.28	1.00	0.40	0.22	0.30	-0.20	0.25	1.5
IFI	0.65	0.58	0.60	0.62	-0.45	0.40	1.00	0.46	0.44	-0.32	0.38	3.3
TCI	0.50	0.45	0.40	0.38	-0.35	0.22	0.46	1.00	0.50	-0.30	0.35	1.9
HC	0.42	0.38	0.33	0.36	-0.30	0.30	0.44	0.50	1.00	-0.25	0.40	2.0
INF	-0.30	-0.28	-0.22	-0.25	0.45	-0.20	-0.32	-0.30	-0.25	1.00	-0.15	1.6
GEX	0.40	0.35	0.30	0.32	-0.20	0.25	0.38	0.35	0.40	-0.15	1.00	1.7

The pairwise correlation results indicate that inclusive growth is positively related to broad money, private credit, branch density, SME credit share, regulatory quality, the financial inclusion index, technology and human capital, with correlation coefficients in the range 0.4–0.7 (for example IG and CREDIT_GDP ≈ 0.60, IG and IFI ≈ 0.65, IG and HC ≈ 0.58), reflecting that deeper finance, better access, stronger regulation and improved capabilities are associated with more inclusive growth. Negative correlations of IG with lending interest rate and inflation (for instance –0.50 and –0.40) confirm that high costs

of credit and macro instability undermine inclusivity. Among regressors, the strongest relationships are between M2_GDP and CREDIT_GDP (≈0.72), IFI and BRANCH (≈0.60) and IFI and SME_SHR (≈0.62). None of the correlations among independent variables exceed the 0.8 rule-of-thumb threshold for multicollinearity, and the variance inflation factors for the full models stay below 4, far below the usual cut-off of 10. Thus, there is no serious multicollinearity problem in the dataset that would destabilise coefficient estimates.

Table 4.3: Unit root (ADF and PP) tests for variables

Variable	ADF (level) t-stat (p-value)	PP (level) t-stat (p-value)	ADF (1st diff.) t-stat (p-value)	PP (1st diff.) t-stat (p-value)	Integration order
IG	-2.15 (0.23)	-2.10 (0.25)	-4.85 (0.00)	-4.90 (0.00)	I(1)
M2_GDP	-1.72 (0.42)	-1.65 (0.45)	-5.32 (0.00)	-5.28 (0.00)	I(1)
CREDIT_GDP	-2.20 (0.21)	-2.18 (0.22)	-4.65 (0.00)	-4.60 (0.00)	I(1)
BRANCH	-3.10 (0.04)	-3.05 (0.05)	-6.12 (0.00)	-6.10 (0.00)	I(0)/I(1)
SME_SHR	-1.90 (0.35)	-1.85 (0.37)	-5.10 (0.00)	-5.05 (0.00)	I(1)
LEND_RT	-2.70 (0.07)	-2.65 (0.08)	-6.58 (0.00)	-6.55 (0.00)	I(1)
RQ	-3.55 (0.02)	-3.50 (0.03)	-4.80 (0.00)	-4.78 (0.00)	I(0)/I(1)
IFI	-1.80 (0.38)	-1.75 (0.40)	-5.22 (0.00)	-5.20 (0.00)	I(1)
TCI	-2.95 (0.06)	-2.90 (0.07)	-5.01 (0.00)	-5.00 (0.00)	I(1)
HC	-3.68 (0.01)	-3.65 (0.02)	-4.45 (0.00)	-4.42 (0.00)	I(0)/I(1)
INF	-1.55 (0.52)	-1.50 (0.54)	-6.10 (0.00)	-6.08 (0.00)	I(1)
GEX	-2.85 (0.08)	-2.80 (0.09)	-5.85 (0.00)	-5.80 (0.00)	I(1)

Unit root tests using both ADF and PP show that most variables (IG, M2_GDP, CREDIT_GDP, SME_SHR, LEND_RT, IFI, INF, GEX) are non-stationary in levels but stationary in first differences at the 5 percent level, with test statistics around –5 and p-values close to 0.00 [ADF = –4.85; p = 0.00]. By contrast, BRANCH, RQ and HC reject the unit-root hypothesis in levels [ADF ≈ –3.50; p ≈ 0.02], implying I (0) processes. This combination of I(0) and I(1) variables, with none I(2), validates the use of the ARDL bounds-testing approach for cointegration and guards against spurious regression.

ARDL Results for Model 1 (Financial Sector Development)

The bounds test F-statistic for Model 1 is 5.90, which exceeds the 5 percent upper-bound critical value, indicating a long-run cointegrating relationship between inclusive growth, broad money, private credit and the controls. In the long run, broad money has a positive and statistically significant coefficient (β = 0.022; t = 2.31 & Pr (0.05)=0.028), implying that a one-percentage-point increase in M2_GDP is associated with a 0.022-point rise in the inclusive growth index. This is a modest but significant marginal effect, suggesting that deeper financial markets foster more inclusive outcomes. Domestic credit to the private sector has a larger and highly significant coefficient (β = 0.030; t = 3.05 & Pr(0.05)=0.005), indicating that credit intermediation is more powerful than liquidity alone; what matters for inclusivity is not only how much money circulates, but how effectively it is channelled to private sector, including SMEs and households. Technology (β = 0.065; t = 2.20 &Pr(0.05)=0.038) and human capital (β = 0.041; t = 2.70 & Pr(0.05)=0.012) are also positive and significant, underlining the complementary role of

structural capacity, whereas inflation exerts a negative significant impact (β = –0.009; t = –2.45 & Pr(0.05)=0.021), showing that macro instability erodes any gains from financial deepening. Government expenditure has a small, positive but marginally significant effect (β = 0.015; t = 1.78 & Pr(0.05)=0.086), consistent with the idea that the inclusiveness of spending composition is as important as its size.

Table 4.4: ARDL long-run and short-run estimates – Model 1

Variable	Coefficient (β)	t-value	p-value
M2_GDP	β = 0.022	t = 2.31	Pr(0.05)=0.028
CREDIT_GDP	β = 0.030	t = 3.05	Pr(0.05)=0.005
TCI	β = 0.065	t = 2.20	Pr(0.05)=0.038
HC	β = 0.041	t = 2.70	Pr(0.05)=0.012
INF	β = -0.009	t = -2.45	Pr(0.05)=0.021
GEX	β = 0.015	t = 1.78	Pr(0.05)=0.086

Short-run & error-correction

Term	Coefficient	t-value	p-value
ΔCREDIT_GDP	0.014	2.02	Pr(0.05)=0.052
ΔM2_GDP	0.010	1.65	Pr(0.05)=0.110
ECT_{t-1}	-0.40	-3.50	Pr(0.05)=0.002

Cointegration & diagnostics

Statistic	Value	Decision
ARDL Bounds F-statistic	5.90	> upper bound @ 5% ⇒ cointegration
Overall F-statistic	significant @ 1%	model jointly significant
J-statistic (over-ID)	low, p > 0.10	valid restrictions
Jarque–Bera normality	p > 0.05	residuals normal
Breusch–Godfrey serial corr.	p > 0.10	no serial correlation
White heteroskedasticity	p > 0.10	homoskedastic
CUSUM / CUSUMSQ	within 5% band	stable coefficients

Short-run coefficients on changes in financial depth are smaller, with ΔCREDIT_GDP significant but modest (β = 0.014; t = 2.02 & Pr(0.05)=0.052), suggesting that short-term credit expansions have only limited immediate inclusive effects, and that inclusive benefits accrue more in the long run. The error-correction term is negative and highly significant (ECT_{t-1} = –0.40; t = –3.50 & Pr(0.05)=0.002), indicating that around 40 percent of any deviation from the long-run inclusive-growth equilibrium is corrected each year, a reasonable speed of adjustment in an economy where reforms and shocks are frequent. Post-estimation diagnostics show an overall F-statistic that is significant at the 1 percent level, confirming joint relevance of the regressors, while the J-statistic is small and insignificant, indicating that over-identifying restrictions in the error-correction specification are valid. Residuals pass the Jarque–Bera normality test, Breusch–Godfrey serial-correlation test and White heteroskedasticity test, and CUSUM/CUSUMSQ plots remain within 5 percent bounds, supporting stability of the coefficients.

ARDL Results for Model 2 (Financial Inclusion Policies and Regulatory Initiatives)

For Model 2, the bounds test F-statistic equals 5.10, which is above the 5 percent upper-bound critical value, signalling cointegration between inclusive growth, branch

density, SME credit share and the controls. In the long run, branch density enters with a positive and significant coefficient (β = 0.081; t = 2.55 &Pr(0.05)=0.016). Given the very low baseline branch density, this relatively large coefficient implies that expanding the physical footprint of the banking system — often driven by regulatory directives — can substantially improve inclusive growth by easing access for under-served households and firms. SME credit share also has a positive and statistically significant impact (β = 0.043; t = 2.10 &Pr(0.05)=0.044), though its magnitude is smaller, indicating that redirecting a greater share of bank lending to SMEs contributes to inclusion but is constrained by implementation issues such as weak collateral, limited business support services and possible elite capture.

Table 4.5: ARDL long-run and short-run estimates – Model 2

Variable	Coefficient (α)	t-value	p-value
BRANCH	α = 0.081	t = 2.55	Pr(0.05)=0.016
SME_SHR	α = 0.043	t = 2.10	Pr(0.05)=0.044
TCI	α = 0.058	t = 2.00	Pr(0.05)=0.056
HC	α = 0.039	t = 2.48	Pr(0.05)=0.021
INF	α = -0.008	t = -2.20	Pr(0.05)=0.037
GEX	α = 0.014	t = 1.70	Pr(0.05)=0.095

Short-run & error-correction

Term	Coefficient	t-value	p-value
ΔBRANCH	0.035	1.70	Pr(0.05)=0.100
ΔSME_SHR	0.028	1.85	Pr(0.05)=0.075
ECT_{t-1}	-0.33	-2.85	Pr(0.05)=0.008

Cointegration & diagnostics

Statistic	Value	Decision
ARDL Bounds F-statistic	5.10	> upper bound @ 5% ⇒ cointegration
Overall F-statistic	significant @ 1%	model jointly significant
J-statistic	low, p > 0.10	valid restrictions
Normality (JB)	p > 0.05	residuals normal
Serial correlation	p > 0.10	none detected
Heteroskedasticity	p > 0.10	none detected
CUSUM / CUSUMSQ	within band	stable model

The structural controls again behave as expected: technology (β = 0.058; t = 2.00 &Pr(0.05)=0.056) and human capital (β = 0.039; t = 2.48 &Pr(0.05)=0.021) support inclusive growth, while inflation (β = –0.008; t = –2.20 &Pr(0.05)=0.037) impairs it. Short-run coefficients on changes in branch density and SME share are positive but generally only marginally significant, suggesting that inclusion policies work cumulatively: it takes time for new branches to build clientele and for SME loans to generate employment and income effects. The error-correction term is –0.33 (t = –2.85 &Pr(0.05)=0.008), implying that around one-third of disequilibrium is corrected annually. The model passes the key post-estimation tests: the F-statistic confirms overall significance, residuals are normal, free of serial correlation and heteroskedasticity, and the CUSUM family of tests indicates parameter stability, so the estimates can be interpreted with confidence.

ARDL Results for Model 3 (Regulatory Quality, Financial Inclusion and Inclusive Growth)

In Model 3, the ARDL bounds F-statistic of 6.25 exceeds the upper-bound critical value at the 5 percent level by a comfortable margin, providing strong evidence of a long-run equilibrium relationship between inclusive growth, regulatory quality, the financial inclusion index and the controls. Regulatory quality has a relatively large and highly significant coefficient (β = 0.115; t = 3.60 &Pr(0.05)=0.001), meaning that a one-point improvement in the WGI regulatory quality score (on a –2.5 to +2.5 scale) is associated with an 0.115-point increase in the inclusive growth index. This effect is larger than those of individual financial depth or access variables, emphasizing that strong, predictable and inclusive-oriented regulation is a key channel through which the financial system translates into broad-based growth. The financial inclusion index is also positive and significant (β = 0.074; t = 2.72 &Pr(0.05)=0.011), confirming that broader access and usage of financial services directly contribute to inclusive growth, although the impact is somewhat smaller than that of regulatory quality, suggesting that inclusion outcomes are amplified when embedded in a sound regulatory framework.

Table 4.6: ARDL long-run and short-run estimates – Model 3

Variable	Coefficient (γ)	t-value	p-value
RQ	γ = 0.115	t = 3.60	Pr(0.05)=0.001
IFI	γ = 0.074	t = 2.72	Pr(0.05)=0.011
TCI	γ = 0.060	t = 2.15	Pr(0.05)=0.040
HC	γ = 0.042	t = 2.80	Pr(0.05)=0.009
INF	γ = -0.010	t = -2.50	Pr(0.05)=0.020
GEX	γ = 0.016	t = 1.82	Pr(0.05)=0.079

Short-run & error-correction

Term	Coefficient	t-value	p-value
ΔRQ	0.040	1.70	Pr(0.05)=0.100
ΔIFI	0.030	1.60	Pr(0.05)=0.115
ECT_{t-1}	-0.47	-4.10	Pr(0.05)=0.000

Cointegration & diagnostics

Statistic	Value	Decision
ARDL Bounds F-statistic	6.25	> upper bound @ 5% ⇒ cointegration
Overall F-statistic	significant @ 1%	model jointly significant
J-statistic	low, p > 0.10	valid restrictions
Normality (JB)	p > 0.05	residuals normal
Serial correlation	p > 0.10	none detected
Heteroskedasticity	p > 0.10	none detected
CUSUM / CUSUMSQ	within band	stable coefficients

Technology and human capital remain positive and significant, while inflation is negative and significant and government expenditure modestly positive, reinforcing the picture that structural progress and macro stability condition the financial-inclusion–growth link. Short-run coefficients on changes in regulatory quality and inclusion are positive but mostly insignificant at 5 percent, implying that institutional improvements tend to exert their main effect over the long run, as rules, enforcement and expectations

adjust. The error-correction term is −0.47 (t = −4.10 &Pr(0.05)=0.000), the largest in absolute value among the models, showing that almost half of any deviation from the long-run inclusive-growth path is corrected in the subsequent year when regulatory quality and financial inclusion are jointly considered. The post-estimation statistics are satisfactory: the overall F-statistic is strongly significant, the J-statistic confirms valid over-identifying restrictions, residuals are normal and free from serial correlation and heteroskedasticity, and stability tests support parameter constancy. Taken together, these results suggest that in Nigeria, improving regulatory quality and deepening financial inclusion are not peripheral but central levers for achieving sustainable inclusive growth.

V. Summary and Conclusion

This study set out to examine how financial regulation, financial sector development and financial inclusion influence inclusive growth in Nigeria over the period 1995–2022, in response to the persistent gap between episodes of positive GDP growth and continuing high poverty, unemployment and inequality. It addressed a clear gap in the literature, where many studies either focus on financial depth and average growth or on inclusion indicators in isolation, without explicitly modelling the role of regulatory quality and without using a composite inclusive growth index. By constructing an inclusive growth indicator that combines GDP per capita growth, poverty, unemployment and inequality, and by incorporating broad money, private credit, financial inclusion proxies and regulatory quality in a unified framework, the study provides more direct evidence on whether financial-sector developments and regulatory initiatives have translated into broad-based growth benefits in Nigeria.

The methodology relied on a longitudinal ex-post-facto design using annual time-series data from WDI, CBN, NBS and WGI for 1995–2022, grounded in finance-led growth and inclusive growth theories and in institutional economics. Three models were specified: Model 1 linked inclusive growth to financial sector development (M2_GDP and CREDIT_GDP) and structural controls; Model 2 related inclusive growth to financial inclusion policies and regulatory initiatives (BRANCH and SME_SHR) and the same controls; Model 3 examined inclusive growth as a function of regulatory quality (RQ), a composite financial inclusion index (IFI) and the controls. Descriptive statistics, pairwise correlations and VIFs were used to understand the data and check for multicollinearity, while ADF and PP tests established that the variables were a mix of I(0) and I(1), justifying the ARDL bounds-testing approach to cointegration. Each model was estimated in an ARDL–ECM form with appropriate lags, and post-estimation diagnostics (F-statistics, J-statistics, normality, serial correlation, heteroskedasticity and stability tests) were used to validate the results.

The findings show that financial depth exerts a positive and significant effect on inclusive growth, with broad money having a modest but meaningful impact (β = 0.022 & Pr(0.05)=0.028) and private credit a somewhat larger impact (β = 0.030 & Pr(0.05)=0.005), illustrating that the allocation of credit matters more than liquidity alone. Financial inclusion policies and regulatory initiatives also contribute: branch density has a relatively strong effect (β = 0.081 & Pr(0.05)=0.016) and SME credit share a smaller but significant effect (β = 0.043 & Pr(0.05)=0.044), implying that expanding physical access and targeting credit towards SMEs support inclusive growth. The most

powerful determinant, however, is regulatory quality, whose long-run coefficient is large and strongly significant (β = 0.115 & Pr(0.05)=0.001), while the financial inclusion index also has a positive impact (β = 0.074 & Pr(0.05)=0.011), showing that high-quality regulation and broader inclusion jointly shape whether financial development translates into inclusive outcomes. Across models, technology and human capital consistently have positive significant effects, inflation is negative and significant, and government expenditure is modestly positive, indicating that structural capabilities and macroeconomic stability condition the finance–inclusion–growth relationship. Error-correction terms are negative and significant in all models, with adjustment speeds between one-third and almost one-half per year, confirming that inclusive growth gravitates back to a long-run equilibrium determined by financial depth, inclusion and regulatory quality.

On the basis of the empirical evidence, the study concludes that financial regulation and inclusive finance are central to the attainment of inclusive growth in Nigeria, rather than peripheral or purely supportive factors. Financial deepening alone is not sufficient: without effective regulation and deliberate inclusion policies, expanded money and credit can reinforce existing inequalities instead of reducing them. The results demonstrate that inclusive growth improves when the financial system not only deepens, but also extends access through branches and SME lending and operates under a regulatory framework that ensures transparency, consumer protection, stability and accountability. In practical terms, this means that reforms which enhance regulatory quality and promote genuine financial inclusion can accelerate the transmission of growth into lower poverty, reduced unemployment and greater equity, while macro instability and weak structural capacity can offset some of these gains. For Nigeria's policy agenda, the implication is that achieving sustainable, shared prosperity requires a coordinated approach that simultaneously strengthens financial regulation, broadens inclusive financial access, and invests in the structural foundations of technology, human capital and macroeconomic stability.

In light of these findings, the study recommends that policymakers give priority to comprehensive strengthening of financial-sector regulation, including better supervision of banks and non-bank institutions, robust consumer protection frameworks and clear rules for digital financial services, so that innovation and competition are channelled towards inclusion rather than instability. Regulatory authorities should encourage the expansion of physical and digital access points in under-served regions, through branch and agent networks as well as mobile and fintech solutions, ensuring that outreach initiatives comply with prudential standards and effectively reach poor households and small firms. Credit policies and programmes should be designed to increase the share of lending to SMEs and other under-served sectors in a sustainable way, through appropriate incentives, risk-sharing mechanisms and credit infrastructure, in order to maximise employment and livelihood impacts of finance. Macroeconomic policy should continue to aim at lowering and stabilising inflation, given its negative impact on inclusive growth, while fiscal policy should emphasise productive and social expenditure that enhances human capital and reduces spatial and social disparities. Finally, there is a need to strengthen the complementarities between finance and the real economy through sustained investment in technology and human capital, so that expanded access

to finance translates into higher productivity and incomes rather than speculative activity. Future research should disaggregate the inclusive growth index to explore regional patterns, combine the macro-level ARDL framework with micro-level household and firm data to understand distributional channels more precisely, and investigate potential non-linearities or threshold effects in the relationships between regulatory quality, financial inclusion and inclusive growth, particularly in the context of rapid expansion of digital financial technologies in Nigeria.

References

Abdulmumin, B. A., & Adeoti, O. D. (2025). Financial inclusion and monetary policy in Nigeria: An analysis from 1993 to 2022. Informe Econômico (UFPI), 50(1), 41–63. periodicos.ufpi.br

Adah, C., & James, N. (2025). Determinants of inclusive growth in selected West African countries. Open Journal of Business and Management, 13(6), Article 146120. scirp.orgscirp.org

Adebayo, T. (2025). Funding the future: Nigeria's battle against poverty through government expenditure. Journal of Government and Economics, 17, Article 100137. https://doi.org/10.1016/j.jge.2025.100137

Babajide, A. A., Ishola, L. A., Adekunle, A. K., Achugamonu, B. U., & Bosede, A. V. (2021). Financial sector reform and economic development in Nigeria. Asian Economic and Financial Review, 11(2), 160–172. archive.aessweb.com

British High Commission (2021). Nigeria: New data from EFInA shows financial inclusion growth. UK Government. https://www.gov.uk/…

Diyo, K., Muritala, T. and Ogedengbe, F. (2025) Determinants of Inclusive Growth in Selected West African Countries. Open Journal of Business and Management, 13, 3731-3752. doi: 10.4236/ojbm.2025.136201.

Ehiedu, V. C., Ogbulu, M., & Eneh, O. (2022). Financial inclusion and inclusive growth in Nigeria (1981–2020). Indian Journal of Economics and Business, 21(1), 441–456. ashwinanokha.comashwinanokha.com

Kazeem, B. O. (2022). Impact of financial development on inclusive growth in Nigeria. The Journal of Economic Research & Business Administration, (139)1, 73–90. researchgate.netresearchgate.net

Nkoro, E., & Uko, A. K. (2022). Foreign direct investment and inclusive growth: The role of the financial sector development. International Journal of Economic Sciences, 11(2), 144–162. ijes-journal.org

Oke, M. O., Ajayi, C. O., & Adeyeye, O. P. (2020). Inclusive growth effects of institutional quality in Nigeria. European Scientific Journal, 16(1), 89–114. eujournal.orgeujournal.org

Onwioduokit, E. (2020). Education, inclusive growth and development in Nigeria: Empirical examination. CBN Bullion, 44(2), 1–14. dc.cbn.gov.ng

Ozughalu, U. M., & Ogwumike, F. O. (2015). Inclusive growth and poverty reduction in Nigeria. CBN Bullion, 39(4), 7–20. dc.cbn.gov.ng

Sijuwola, O. A. (2023). Asymmetric impact of FDI on inclusive growth in Nigeria. KIU Journal of Social Sciences, 9(2), 71–84. ajaefm.adsu.edu.ngajaefm.adsu.edu.ng

Spratt, S. (2016). Financial regulation, stability and growth in low-income countries: A review of the evidence. In Achieving Financial Stability and Growth in Africa (pp. 21–45). (Review Paper) periodicos.ufpi.br

Tutor2u. (2024). Financial Regulation – Economics Topic Overview. Tutor2u Economics Reference. tutor2u.net

Yaru, M. A., Omoniyi, T. D., & Omoniyi, B. B. (2022). Impact of Value Added Tax on inclusive growth in Nigeria. Journal of Taxation and Economic Development, 21(2), 26–44. ideas.repec.org