Financial Inclusion as a Catalyst for Economic Growth in Nigeria

Abstract

A substantial portion of Nigeria's population lacks access to formal financial services, needed to grow the country's economy, especially the thriving informal economic sector. The challenges from this lack of access to financial services (currently 55% of total population in Nigeria) will lead to Nigerians being denied access to deposits, credits, remittances, investments and many other financial services that help facilitate economic growth for the country. The solution to this is the adoption of a strong approach to financial Inclusion. Financial inclusion has the potential to serve as a catalyst for inclusive development in Nigeria. The study was undertaken to emphasize the significance of financial inclusion in Nigeria as a crucial catalyst for long-term economic growth. Using interpolated quarterly data from 2000 to 2022 of Nigeria's Macroeconomic Variables, the study adopts principal components analysis (PCA) to compute a new series of financial inclusion index and in addition the study made use of modified ordinary least square to estimate a reduced form of endogenous finance-growth model. The paper established that remittance, trade openness, interest rate, and exchange rate are the main drivers of financial inclusion in Nigeria with $p < 0.05$. The study additionally showed that financial inclusion is a significant driver of economic development in Nigeria, particularly in the service and manufacturing sectors. It was determined, however, that a critical minimum level of financial inclusion is necessary for it to perform this developmental role. Specifically, it was established that financial inclusion must increase by as much as 128% and 47% on a quarterly basis in order to stimulate manufacturing and catalyze the industrial sector, while less than 5% is required to drive growth in Nigeria's service sector, agricultural sector, and overall economy. This suggests that expanding access to financial services enhances economic performance and contributes to Nigeria's sustained economic growth and development.

KEYWORDS: Financial Inclusion, Economic Growth, Principal Components Analysis, Macroeconomic Variables, Threshold Effect.

1.0 INTRODUCTION

1.1 Background to the study

Nigeria as a nation has numerous economic opportunities, but a sizeable portion of its population is still excluded from the established financial system. Lack of access to financial services, credit facilities, insurance coverage, and investment opportunities inhibits economic growth and efforts to reduce poverty. Not only is financial inclusion essential for society, but it is also a prerequisite for economic stability. The incorporation of financial inclusion as one of the core objectives of the Nigerian Financial System Strategy 2020 (FSS 2020) was one of the most important steps in this direction. The FSS 2020 is a comprehensive and strategic road map and framework for transforming the Nigerian financial sector into a development catalyst that will enable Nigeria to become one of the twenty largest economies by 2020.

FSS2020 identified six financial sector stakeholders, including banking institutions, non-bank financial institutions, insurance companies, capital market operators, pension institutions, and technology service providers, in addition to their regulatory bodies (Manasseh et al., 2023). Four out of the six initiatives adopted to strengthen the domestic financial market address financial inclusion directly. These initiatives include the creation of diverse financial products, the improvement of payment processes, the expansion of the credit system, and the promotion of a culture of savings (Olusegun, Evbuomvan, and Belonwu, 2021). The strategy highlighted the objectives of financial inclusion as the condition in which adults have formal, easy access to a comprehensive range of appropriate, affordable, and dignifying financial products.

The primary objective of financial inclusion programmes in Nigeria and other developing nations is to use financial inclusion as a driving force to stimulate and encourage inclusive economic growth by reducing poverty, boosting development, more evenly distributing income, and preserving financial system stability. A number of economic sectors, including the financial sector, contribute to economic development. According to Levine (2005), the financial sector serves four important economic functions: mitigating risk, mobilizing savings, reducing transaction and information costs, and fostering specialization. Available evidence affirms that the financial inclusion strategy is responsible for the astronomical growth and development of Asian titans and other nations such as India, China, Indonesia, and Malaysia. Since the turn of the century, financial inclusion has risen to the forefront of both national and international policy agendas. Numerous nations have adopted financial inclusion in an effort to generate a more equitable economic expansion (Collard, 2010). Financial inclusion is one of the United Nations' (UN) Millennium and Sustainable Development Goals in order to achieve sustainable development and improve global welfare based on human rights and equality in order to promote social, economic, and environmental development. According to Pearce (2011), the significance of financial inclusion is now widely acknowledged, with many nations making it a national policy objective.

Financial inclusion is essential for establishing a solid foundation for a nation's financial infrastructure, which will foster economic growth and progress (Sharma, 2016). Most governments of developing nations have taken measures to expand access to financial services for those who are excluded from the financial sector. In accordance with the Central Bank of Nigeria's policy directives and strategy, as well as the institution's strategic development goals, the Nigerian government expands financial inclusion through the use of community banks, people's banks, recently introduced E-Money, and improved microfinance services. Due

to the rapid growth and expansion of Agent Banking, Mobile Banking, and innovative technologies such as the Biometric Scanning System, which generates a unique biometric verification number, all social classes in various regions of Nigeria now have improved access to financial services. Consequently, financial inclusion has grown dramatically over the past decade.

1.2 Financial Inclusion Rationale and Policy Relevance

Financial inclusion holds significant importance due to its wide-ranging and comprehensive impacts. The inclusion of individuals and communities in financial systems yields positive outcomes in terms of reducing poverty rates and addressing issues of inequality, as it provides low incomes individuals and those that are marginalized with the opportunity to access and utilize lawful financial services, such as insurance, credit, and savings. Financial inclusion has the ability to mitigate poverty and economic inequality by equipping individuals with the necessary resources to effectively manage their finances and participate in income-generating endeavors. The promotion of financial inclusion has been demonstrated to have a positive impact on economic growth in the assertion that increased accessibility to financial services is a catalyst for heightened engagement in economic endeavors and fosters economic growth and stability at both local and higher levels of governance by facilitating savings, investment, and entrepreneurship.

Financial inclusion facilitates the establishment and expansion of small enterprises by obviating their challenges in securing financial support from conventional banking establishments. The utilization of novel lending methodologies and online platforms facilitate the provision of capital to entrepreneurs, hence enhancing financial inclusivity. Financial inclusion has the potential to enhance the empowerment of demographic groups that are commonly disenfranchised within society, especially women and thus advancing gender equality and women's economic empowerment. It empowers women by enhancing their control over financial resources, along with improved access to education, better health outcomes, and increased autonomy in making household decisions.

The promotion of financial inclusion fosters the growth of innovation in the financial industry and has led to the emergence of fintech (financial technology) solutions, specifically designed to cater to the requirements of underserved groups. These technological advancements have positively impacted the broader financial ecosystem and enhanced the delivery of financial services. The integration of technology facilitates financial

inclusion by enhancing the accessibility of digital financial services to a broader spectrum of individuals (wider demography), thereby fostering digital inclusivity.

The specific impact of financial inclusion on various economic sectors has received scant attention from researchers and policymakers. In fact, despite that financial inclusion is a strategic policy priority for achieving inclusive development in Nigeria, only a limited amount of research has examined the impact of financial inclusion on productivity and sustainable economic growth in Nigeria. The literature reveals that some authors found financial inclusion to have a positive effect on economic growth, whereas others found negative relationships between these variables of interest. For example, Dinh & Nguyen (2019), Ifediora et al. (2022), Sethi & Acharya (2018), and Wakdok (2018) found that financial inclusion positively influenced economic growth. Jima & Makoni (2023), Collins & Ng'weno (2018), VanWyk & Kapingura (2021), and Law & Singh (2014), on the other hand, discovered negative relationships between financial inclusion and output growth. Time series studies utilized autoregressive distributed lag (ARDL), error correction models (ECM), and vector error correction models (VECM) for the methodological evaluations. Most of the panel studies employed fixed and random effects techniques, the generalized method of moments (GMM), and panel autorgressive distributed lag (PARDL) approaches.

Sub-Saharan Africa, unlike other regions, has the least developed economies. Only 43% of residents in this region have bank accounts, suggesting that a significant proportion of adults in the SSA region lack access to financial services and thus financially excluded (Makoni 2014; Demirgüc-Kunt et al. 2018). Given the significance of finance to economic growth, a low level of financial inclusion has been identified as one of the causes of the region's high poverty and inequality (Park and Mercado, 2015). As stated earlier, research on the relationship between financial inclusion and economic growth has produced mixed results. A number of academics contend that finance promotes economic growth, thereby supporting the supply-leading hypothesis (Patrick 1966; Revell and Goldberg 1970; King and Levine 1993), and some others found the opposite (Seven and Yetkiner 2016; van Wyk and Kapingura 2021). There is the argument that economic development will generate demand for finance and financial services (Robinson, 1979). In addition, some scholars argue that financial inclusion and economic growth are interdependent (Sethi and Acharya 2018; Chima et al. 2021; Jima and Makoni 2023). Inconsistent findings on the causality between financial inclusion and economic growth in various contexts necessitate additional research in the field to complement the few studies conducted in SSA (An et al., 2021). This lack of consensus among academics is the impetus for this

study, which seeks to cast more light on the relationship between financial inclusion and economic growth in the SSA, with a focus on the direction of causation between the two variables.

1.3 Research Objectives

This study aims to empirically investigate the connection between financial inclusion and economic development in Nigeria. The purpose of this study is to examine how financial inclusion strategies have stimulated economic growth in a variety of countries, as well as how they might do so in Nigeria. Although this topic has been the subject of other studies, this one is unique in a number of ways, including the fact that it investigates the sectorial effects and relative effectiveness of financial inclusion. In addition, the study will investigate the impact of macroeconomic factors such as trade, fiscal, and monetary policy, digital technology adoption, financial liberation, trade openness, and telecommunications infrastructure development on the catalytic effects of financial inclusion on fostering economic growth. Also, it will establish the optimal financial inclusion strategy for Nigeria and the required growth-enhancing threshold. This will be accomplished by examining various facets of financial inclusion, combining various measures, and developing original indices in addition to existing conventional indices to assess the conditions that must be met for financial inclusion to act as a catalyst and a key factor in fostering inclusive growth. Specifically, the research investigates the main macroeconomic enablers of financial inclusion in Nigeria and determine the most appropriate financial inclusion strategy best suited for boost growth in Nigeria with a view to establish the relative effectiveness of financial inclusion as a catalyst of boosting the real growth of different economic sectors (manufacturing, services and agricultural and aggregate) in Nigeria

1.4 Research Hypotheses

H_{O1}: Macroeconomic factors do not significantly influence financial inclusion in Nigeria.
H_{O2}: Financial inclusion strategies do not significantly boost economic growth in Nigeria.
H_{03}: Household consumption patterns and private-sector investment spending are not significant influence on economic growth indices in Nigeria.

2.0 LITERATURE REVIEW

This section looks at the various literatures related to the prospect of using financial inclusion to aid economic growth, covering the concepts, previous works on the topic and the gaps the study intends to cover.

2.1.1 Setting Financial Inclusion in a Theoretical Context

Financial inclusion is a diverse concept with multiple definitions based on a country's socioeconomic development level (Akileng, Lawino, and Nzibonera, 2018). Some studies examine the absence of access to the formal financial system (i.e., financial exclusion) as a result of social exclusion. In the earliest attempt to define financial exclusion, Leyshon and Thrift (1995) defined it as mechanisms that prevented people from disadvantaged backgrounds from accessing the financial system. Gardener and Molyneux (2005) defined financial exclusion as the inability of certain groups to access the financial system. Other studies, however, have proposed a direct concept of financial inclusion.

Demirguc-Kunt, Klapper, Singer, and Van Oudheusden (2015) defined financial inclusion as having a bank account and using it routinely, making payments easily and affordably, and doing so on a regular basis. Thus, financial inclusion is a process that ensures all economic sectors have easy access, availability, and utilization of formal financial services (Sarma, 2016). The World Bank emphasized that financial inclusion also takes financial sustainability and individual needs into account: "Financial inclusion means that individuals and businesses have access to useful and affordable financial products and services that meet their needs – transactions, payments, savings, credit, and insurance – delivered in a responsible and sustainable manner." Accordingly, the majority of researchers contend that financial inclusion is the availability of all formal financial services at a reasonable cost, in a timely manner, and in sufficient quantity for all segments of society. Multiple nations view financial inclusion as a crucial factor in economic development. Therefore, it captures the attention of academics and economic policymakers worldwide.

2.1.2 Macroeconomic Context of Financial Inclusion

Financial inclusion: Financial inclusion policy and its implementation cannot be achieved in isolation. It is a compliment to other policies that are targeted at stimulating and catalyzing the achievement of overall macroeconomic policy targets and goals. The achievement of these goals is measured by changes in some macroeconomic parameters and indicators such as inflation rate, exchange rate, unemployment rate, interest rate, poverty rate and more importantly economic growth.

Among these, economic growth and inflation are fundamental indicators of the direction of macroeconomic performance. They reflect and capture the dynamics of all other variables and they reflect to a large extent the magnitude and direction of changes in all other variables. While economic growth reflects growth in goods and services available to people from productive efforts, inflation reflects macroeconomic stability as well as the cost of access and value created through productive efforts over time.

Therefore, the first fundamental indicator of success in the catalytic role of financial inclusion is a steady, stable, and sustained increase in output and consumption of goods and services, as measured by economic growth. It is a critical government macroeconomic goal that creates the framework for economic transformation, job creation, price stability, balance of payments, wealth transfer, and economic equality. According to Owan, Ndibe, and Anyanwu (2020), this economic term incorporates a range of aspects, including GDP growth, infrastructure developments, and greater living standards. Manasseh et al. (2023) describe economic development as a country's long-term increase in its ability to deliver a growing variety of products to its inhabitants, which is based on available technologies, institutions, and ideological adjustment.

It can thus be argued that it is not only continuous GDP growth that enables continuous economic advancement and increased productive capacity, but also the pathways that lead to these outcomes. The endogenous growth model is an economic paradigm that emphasizes the importance of internal variables to long-term economic development, such as human capital, technical progress, and innovation. Unlike previous growth theories that primarily focused on exogenous factors such as capital accumulation or population increase (Romer, 1986), this theory contends that sustained economic growth can be achieved through endogenously determined elements within the economy. Access to capital is another important factor driving output growth. Models of financial economics investigated how market frictions influenced the creation of financial contracts, markets, and intermediaries, which in turn affected managerial incentives, business operations, and resource allocation (Boyd & Prescott, 1986).

The second most important macroeconomic context of financial inclusion is inflation**.** Financial inclusion strategy is an important consideration in monetary and fiscal policy decisions. It is centered on liquidity and financial access. As a result, financial inclusion may have both good and unfavorable repercussions

in terms of cost of living, cost of production, and ease of doing business. As a result, macroeconomic stability as measured by inflation is an important factor to examine when considering the extent to which financial inclusion can promote inclusive economic growth. Inflation is defined as an overall rise in the cost of goods and services across an economy. As the general price level rises, each unit of currency may buy fewer goods and services, implying that inflation is associated with a loss of money's purchasing power. The Consumer Price Index (CPI), a weighted average of prices for various items, is used to calculate inflation. The index is made up of a variety of commodities that are thought to represent a typical consumption basket. As a result, the index will include a variety of items based on the country and general consumer trends**.**

Financial inclusion is directly impacted by exchange rate fluctuations as well. The exchange rate between two currencies is the amount it costs to convert one currency into another. The exchange rate, then, represents the cost of one currency in relation to another. Similar to this, the central bank's interest rate policy determines the cost at which commercial banks and individuals can borrow money from it, which in turn regulates the level of other interest rates across the economy. As a result, the ability of banks to provide financial products to their customers is significantly influenced by interest rates. Interest rates are a financial two-edged sword. A higher interest rate encourages saving and financial product investment. In order to produce financial revenue, more people should therefore be encouraged to purchase financial inclusion services and goods. This will directly increase productivity, economic growth, and welfare. On the flip side, higher interest rates result in higher borrowing costs, decreased liquidity, and decreased demand for money, all of which deter many people from requesting financial services and products because the associated costs may be prohibitive and discourage the strategic goal of financial inclusion.

2.1.3 Finance and Economic Growth Nexus

According to Levine (2021), throughout the last three decades, the relationship between finance and growth has arisen as a unique topic of research. Prior to the 1990s, despite Schumpeter's (1912) emphasis on the importance of the financial system to economic growth, finance and economic growth were mainly seen as independent topics within the discipline. As a result, beginning in 1990, scholars began to incorporate these phenomena into economic study, and the finance-growth literature was born. The finance-growth theoretical literature has grown quickly since this shift. Surprisingly, finance includes

both public and private sector financing. Credits in the private sector can be classified as industrial, services, construction, mining, or agricultural.

Financing small businesses is an important part of private credit because of the roles they play (Mbutor, Ochu, & Okafor, 2013), and it is critical to achieving poverty eradication, decent work, and economic progress through policies that mobilize and implement resources. The Sustainable Development Goals (SDGs) are global indicators that are used to assess governments on a global scale. Capital is required for the purchase of inputs, machinery, human expenses, and technical improvements. Small-business owners, on the other hand, have limited access to loans and other financial services from financial institutions (Mbelu & Ifionu, 2022). This is because financial institutions and governments consider it too risky to issue these credits through traditional channels, given that the majority of borrowers lack acceptable loan collateral. Because of the nature of the industry, the credit and savings discrepancy is always significant, especially for small enterprises. (Ijaiya and colleagues, 2017) Despite the vast quantity of capital available and multiple efforts by both the private and public sectors, meeting the tremendous demand for investment capital has proven unachievable. As a result, offering sustainable and stable financial services to small enterprises in Nigeria has proven extremely difficult (Third International Conference on Financing for Development, 2015). As a result, it is possible to argue that a bigger number of small business owners do not have access to official financial services.

As a result, the G20 established the Global Partnership for Financial Inclusion (GPFI) to promote limitless access to financing for individuals and businesses and to close credit gaps. In an effort to reduce financial exclusion and other institutional barriers, it specifically targets agricultural financing, traditional crafts and weaving, newcomers to information technology, small-scale mining, and rural agro-enterprise. Despite these hopeful signs, Nigeria faces a number of challenges that could stymie its economic growth. One of the most serious issues is the lack of financial inclusion, which limits industrial output and impedes the expansion of small and medium-sized businesses.

Financial inclusion has been an increasingly important issue of discussion among key stakeholders, scholars, and policymakers in the majority of developing countries. As a result, it is a process that facilitates economic members' access to and use of formal financial systems (Mohammed et al., 2023). Furthermore, financial inclusion is a condition in which all members of the economy can open a bank

account, obtain credit, and use financial system products and services without trouble. To put it another way, financial inclusion includes giving low-income people access to financial services that promote large capital accumulation, credit creation, and investment boom (Olusegun et al., 2021).

Since 2005, there has been an increase in government and regulatory initiatives targeted at improving financial inclusion policies in Nigeria. The Central Bank of Nigeria (CBN) has been at the forefront of encouraging and supporting products designed specifically for low-income and financially excluded individuals, whereas the government has focused more on interventionist financing arrangements and the establishment of institutions and frameworks that promote financial inclusion. One of the most significant moves in this approach was the inclusion of financial inclusion as one of the primary objectives of the Nigerian Financial System Strategy 2020 (FSS 2020). The FSS 2020 is a comprehensive and strategic roadmap and framework for transforming Nigeria's financial sector into a development catalyst, allowing Nigeria to become one of the world's twenty largest economies by 2020.

Banking institutions, non-bank financial institutions, insurance companies, capital market operators, pension institutions, and technology service providers, as well as their regulatory bodies, were identified as financial sector stakeholders in the Financial System Strategy (FSS 2020) (Manasseh et al., 2023). Four of the six efforts to develop the domestic financial market directly address financial inclusion. These activities include the development of various financial products, the enhancement of payment procedures, the extension of the credit system, and the promotion of a savings culture (Olusegun, Evbuomvan, and Belonwu, 2021). The strategy emphasized the goals of financial inclusion, which is defined as individuals having formal, simple access to a diverse variety of acceptable, cheap, and dignified financial goods.

Historically, the Nigerian economy has been described as predominantly cash-based, with a large amount of currency flows stock occurring outside of the banking system. The percentage ratio of currency outside the banking sector (COBs) to narrow money supply (M) has continued to fall over the last decade, according to available data. For example, the ratio of COB to M fell from 61.1% to 44.3% in the 1960s to 40.9% in the 1980s; nonetheless, their nominal values remain relatively high compared to the level of narrow money. These discernible tendencies can be attributed to developments in the financial sector, including an increase in financial awareness and legislation aimed at fostering financial

sector expansion. By launching a rural banking initiative, the CBN also encouraged banks to open branches and provide financial services to consumers in rural areas.

Previously, banks eroded customer confidence in the 1990s, but this problem was compounded by financial irregularities by the political elite, resulting in an increase in the volume of currency outside the banking system. Given the above, the proportion of currency kept outside the banking system climbed to 47.7% by the end of the 1990s. To avoid the banking industry from deteriorating, policies such as economic reforms must not only promote well-being, but also create jobs, raise income-earning capacity, and increase financial depth (Arshad et al., 2021). In 2000, the unemployment rate was 38.66%; in 2003 and 2006, it was 25.47%; and in 2010, it was 16.77%. In comparison, there was a minor increase to 18.01% in 2014, followed by a drop to 15.91% in 2020. This predicted fall lasted until 2023, when it was reduced to 14.75% in 2021, 13.43% in 2022, and 7.41% in 2023 (Central Bank of Nigeria (CBN), 2023).

Recently, the Central Bank of Nigeria pushed banks to invest more in low-cost branchless channels such as ATMs, point-of-sale (POS), and so on. At the end of 2011, there were 9,640 ATMs in operation, representing an average of 11 per 100,000 adults. The cashless policy was implemented to accelerate the usage of contemporary electronic payment channels with three key goals in mind: to develop and modernize the payment system; to minimize banking costs in order to promote financial inclusion; and to improve the efficacy of monetary policy. This increased the number of ATMs per 100,000 adults to 16,406 in 2015, before rising to 18,616 in 2018. The number of ATMs per 100,000 adults peaked at 18,810 in 2020 and then to 19,355 in 2021 (National Bureau of Statistics, 2022). In other words, the policies, which included the adoption of Islamic banking products, were expected to promote financial inclusion on the implicit premise that lower banking costs and a more efficient payment system would encourage more individuals and businesses to use formal financial service platforms.

2.2.0 Empirical Review on Financial Inclusion and Economic Growth

Several studies on financial inclusion focus on measuring and promoting financial inclusion (e.g., Allen, Demirguc-Kunt, Klapper, & Peria, 2016; Sarma, 2016; Wang & Guan, 2017; Mialou, Amidzic, & Massara, 2017; Camara & Tuesta, 2018; Park & Mercado, 2018b; Nuzzo & Piermattei, 2019; Ambarkhane, Singh), and recent studies have examined the relationship between financial inclusion

and monetary policy (for example, see Lenka and Bairwa, 2016; Mehrotra and Nadhanael, 2016; Anarfo, Abor, Osei, and Gyeke-Dako, 2019; Elsherif, 2019; Dauda, Yusuf, and Abdulrahman, 2020).

Several studies have been conducted to investigate the relationship between financial inclusion and economic growth with conclusions that vary by economy and region due to a range of socioeconomic circumstances. Al-Moulani and Alexiou (2017), Benczr et al. (2019), Afonso and Blanco-Arano (2022), and Asante et al. (2023) have all found that increasing financial inclusion has a favorable impact on the socioeconomic development of many developing countries. By raising savings and capital productivity, financial inclusion fosters economic development. Elias and Worku (2015) investigated the relationship between economic growth and domestic savings in East African nations and observed a large and unidirectional positive relationship in Ethiopia and Uganda. According to Campos et al. (2012), financial innovation has a favorable long-term impact on Argentina's economic growth. Financial inclusion boosts economic growth by raising savings and diversifying financial sources (Dabla-Norris et al., 2015; Iqbal and Samad, 2017; Sharma, 2016).

Other current academics argue that finance and growth have a non-linear inverted U-shaped relationship, indicating the existence of a tipping point in the impact of finance on investment and consumption loans. Economic progress is hampered by consumption loans, but investment loans enhance it. Sahay et al. (2015) observed a positive bell-shaped association between financial depth and economic development, showing that as financial depth increases, the returns to growth begin to diminish. According to Cecchetti and Kharroubi (2012), the private credit expansion tipping point is close to 90% of GDP. Law and Singh (2014) discovered that finance boosts development up to a finance-to-GDP ratio of roughly 88%. Otherwise, if financial inclusion reaches a certain level, the influence of finance on growth will become negative. In India, Shahbaz et al. (2017) discovered a nonlinear relationship between financial development and economic growth, arguing that only negative financial shocks have an impact on economic growth.

The empirical evidence presented above demonstrates that there is a varying relationship between financial inclusion and economic growth. Some research back up the demand-following idea, while others back up the supply-leading view. Furthermore, some research discovered a substantial negative link between the two factors, while others discovered a significant positive relationship. Other research

indicates that financial inclusion has a favorable impact on economic performance to varying degrees depending on the economy and area. Furthermore, the causality between financial inclusion and economic growth varies. As a result, it is important to investigate the relationship between financial inclusion and economic development, as well as to design policy frameworks that will aid in increasing investment opportunities and economic growth in emerging countries.

2.3.0 Theoretical Review

2.3.1 Public good theory of financial inclusion

According to the public good concept of financial inclusion, providing formal financial services should be considered a public good. Formal financial services, according to the idea, are a public good that should be made available to everyone for everyone's benefit. Everyone should have unrestricted access to financial resources and because formal financial services are a public good, one person's access to them has no bearing on the availability of such services for others. According to this point of view, financial inclusion benefits everyone and leaves no one out. The public benefit principle of financial inclusion allows for the distribution of free debit cards to anybody who opens a formal bank account. They can use Automated Teller Machines (ATMs) to conduct transactions without incurring a transaction fee. As a sunk cost of doing business, financial institutions and other suppliers of formal financial services will be accountable for paying the costs associated with providing those services.

2.3.2 Vulnerable group theory of financial inclusion

According to the vulnerable group theory of financial inclusion, a country's financial inclusion programmes should target the weaker members of society who are most impacted by economic hardship and crises, such as the poor, children, women, and the elderly. According to this reasoning, people who are most vulnerable are often the ones who suffer the most from economic downturns and financial crises, so including them in the official financial system makes sense. Government-to-person (G2P) social cash transfers into vulnerable people's official accounts is one method. Financial institutions can obtain government subsidies to help them with any costs associated with providing residents with free formal financial services.

2.3.3 Systems theory of financial inclusion

According to the systems theory of financial inclusion, the subsystems on which financial inclusion is based (such as the economic, social, and financial systems) are what allow it to achieve its objectives. As a result, increased financial inclusion will benefit those subsystems. A large alteration in a subsystem (one component of the system) could have a considerable impact on the expected outcome of financial inclusion. For example, by imposing regulation on financial sector agents (members of the financial system), it is possible to align their interests with those of users of basic financial services and compel them to provide quality financial services at an affordable price while adhering to certain rules that protect formal financial service users from being exploited and subjected to price discrimination.

2.3.4 Community Echelon Theory of Financial Inclusion

According to the community echelon of financial inclusion, formal financial services should be provided to the excluded populace by their communal leaders. According to the hypothesis, community leaders are influential in their communities and can use their influence to promote or persuade community members to enter the official financial sector. Since the values of its leaders and members are shaped by the community, members feel their leaders will make decisions that are advantageous to them, while community leaders will ensure that the decisions, they make represent the values and ethos shared by members of the community. Because of the deep cultural ties that exist between community leaders and members, community leaders can urge their members to engage in the official financial sector.

2.3.5 Special Agent Theory of Financial Inclusion

Special agents, according to the special agent theory of financial inclusion, should provide formal financial services to the excluded. It can be difficult to provide formal financial services to unbanked adults due to their distant communities, residence, or location. The special agent, according to this theory, must be: (i) a highly skilled and specialized agent; (ii) familiar with the peculiarities of the excluded community; and (iii) conversant with the informal financial system that presently exists in communities where the excluded members reside. The special agent should be intelligent, highly experienced, and extraordinary in her ability to provide formal financial services to the excluded community.

The special agent theory of financial inclusion has some advantages. First, it employs specialized agents to give official financial services to the excluded. Secondly, it allows the government can to focus on other critical and pressing national issues.

2.3.6 Financial Literacy Theory of Financial Inclusion

Financial literacy, according to the financial inclusion concept, will increase people's awareness and willingness to join the formal financial system. People who learn about money are more likely to seek formal financial services wherever they can find them. One of the advantages is that a financially knowledgeable individual is aware of the available formal financial services and can improve her well-being.

Also, financial literacy enables people gain access to benefits in the traditional financial system, such as investing and mortgage products. As well, financial knowledgeable people can readily achieve financial stability and become self-sufficient, learning to distinguish between needs and wants, create and manage budgets, save money to pay bills on time, and plan for retirement. Finally, because educating the public about financial management and the benefits of using formal financial services is relatively less expensive, governments with limited public funds or tax revenue to fund financial inclusion programmes may prefer to use financial literacy as a national strategy for financial inclusion.

.2.4.7 Collaborative Intervention Theory of Financial Inclusion

According to the collaborative intervention theory of financial inclusion, formal financial services should be provided to the excluded population through joint intervention from numerous stakeholders. Collaborative intervention promotes a multistakeholder approach that provides a sense of accomplishment and generates new ideas to addressing financial inclusion.

2.5.0 Theoretical Framework

Given the nature of this study, the vulnerable group theory as well as financial literacy and collaborative intervention are used as theoretical foundations for examining the financial inclusion-growth nexus and identifying potential channels and drivers of financial inclusion. The financial inclusion strategy promotes the participation of the poor, the disadvantaged population, and vulnerable groups. Financial literacy and stakeholders' collaboration ensure that the strategy works and that the goals of financial

inclusion as a catalyst for economic growth are met, given that most vulnerable citizens are excluded from financial service offerings.

The theories provide the following benefits. They focus on vulnerable groups and bring them into the formal financial sector. They make simple identifying the economically excluded people. by their level of susceptibility in terms of income, gender, age, and other demographic variables. Third, targeting only the most disadvantaged members of the population for financial inclusion may be more cost-effective than achieving financial inclusion for the entire population.

3.0 METHODOLOGY

3.1 Research Design

Based on the research objectives, a suitable design is utilized to derive a unique measure of financial inclusion using principal component analysis (PCA), which incorporates all the various dimensions of financial inclusion. Using these metrics, a model of economic growth that incorporates both financial inclusion measures and other macroeconomic variables was estimated and analyzed for the various measures of economic growth. Both descriptive and econometric approaches were utilized, and descriptive statistics of the trend and pattern of financial inclusion and various components of economic growth were juxtaposed and correlated to determine the existence of a discernible pattern, as well as the various factors that could account for such a pattern examined in depth.

Second, the specification of a model that captures both the financial industry-specific characteristics and the macroeconomic conditions of the Nigerian economy as a whole is provided. This model was estimated and analyzed to establish the relative contributions of financial inclusion to economic expansion. This model was augmented with various measures of macroeconomic policy and institutional factors in order to determine which institutional factors and macroeconomic variables were detrimental to financial inclusion, as well as the threshold at which these variables become inhibitory or stimulate financial inclusion as growth drivers. Diverse combinations of financial inclusion and macroeconomic variables were employed, and a new set of indices evaluated to determine the inherent relationships. The data set contained both quarterly and monthly data from 2000.

3.2 Data Description

This study is quantitative in nature and utilized secondary Nigerian annual time series data. The data spans the 23-year period from 2000 to 2022. The data was derived from statistical bulletins and annual reports published by the Central Bank of Nigeria. Data were available through 2021, and data for 2022 were interpolated based on some of the variables with available data, so the data used will correspond to the actual data whenever they are released.

3.3 Construction of Financial Inclusion Index

Financial inclusion can be measured in three dimensions: availability, utilization, and penetration. Existing studies in Nigeria have documented financial inclusion using measures that capture either one or two of these dimensions. Consequently, their findings are inconsistent and difficult to compare, as each measure captures a unique aspect of financial inclusion. Jungo et al. (2022) argued that the application of a single indicator may result in incomplete data and erroneous conclusions. Jima and Makoni (2023), Makina and Walle (2019), and Dabla-Norri et al. (2015) proposed a composite financial inclusion index that incorporates the three dimensions of financial inclusion (FI) as proxies.

The Financial inclusion index is constructed using principal component analysis (PCA) to combine the measures of the three dimensions: penetration (access), availability, and usage of financial services into a single variable that encompasses all of the dimensions' characteristics. A composite index for financial inclusion was constructed utilizing principal component analysis (PCA). This index eliminates the potential bias that could result from utilizing highly correlated variables in a model. Six indicators were chosen to depict the dimension of the three. Accessibility was measured by number of accounts per 1000 adults (NAC), availability by number of ATMs (NAT) and branches [NBR] per 1000 km^2 and branches of commercial banks (BRA) per 100,000 adults, and usage (private sector credit as a percentage of GDP (CPS) and bank deposits and savings with commercial and non-commercial banks). The index is created utilizing a two-step process.

Table 1: Financial Inclusion Indicators

	Variables	Abbreviation	Dimension Measured
1	Number of accounts per 1000 adults	NAC	Penetration
2	Number of ATMs (NAT) per 1000 adults	NAT	Availability
3	Branches of commercial banks per 100,000 adults	BRA	Availability
4	Number of branches per 1000 km2	NBR	Availability
5	Credit to the private sector as a percentage of GDP	CPS	Usage
6	Bank deposit and savings	PSD	Usage

Source: Author Computation

As a starting point, the variables were normalized and rescaled, with the data series first being normalized with a Z-score normalization method using the following equation.

$$FIz_i = \frac{Actual\ value\ of\ indicatior_i - Minimum\ value\ of\ indicator_t}{Maximum\ value\ of\ indicator_i - Minimum\ value\ of\ Indicator_t} \quad \text{..... 3.1}$$

After normalization, where Fz is the derived values for each of the six measures of financial inclusion are used in the PCA estimation to compute the Eigenvalues for the indicators in order to construct the composite index. From the PCA estimation, a new construct of financial inclusion variable is derived using equation 3.2 that uses the generated eigenvalues as weights to create a new series for financial inclusion.

$$FII_i = \sum_i^n \beta_{ij} FIz_{ij} \quad \text{.....3.2}$$

where FIIi = estimate of the ith factor of financial inclusion; i = weight of the score coefficient; FIz_ij = individual variables of interest (NAC, NAT, NBR, BRA, CPS PSD) derived from equation 1; n = number of variables; and variables are transformed into their natural log form. Consequently, FII will also be in its natural log form.

3.4 Economic Growth and Macroeconomic Conditioning Variables

To capture economic growth, four measures of economic performance were considered. The aggregate economic Growth (RGDP) and the four basic sectors of manufacturing (MGDP), industrial (IGDP), service (SGDP) and agricultural (AGDP) components. The main argument for the consideration of these

components is the fact that financial inclusion may have differential impact on the different sectors of the economy. Given the differences in the level of formality and modernity, the financial inclusion catalyst potentials may be different from sector to sector. It is therefore, important to determine which sectors are more responsive to financial development and inclusiveness. In addition, the model was augmented with macroeconomic conditioning variables that affect the relationship between financial inclusion and economic growth and hence some of macroeconomic factors were used as control variables, which include trade openness, workers remittance, financial development proxied by broad money supply as a ration of GDP, real interest rate, real exchange rate and inflation uncertainty.

3.5 Model Specification

As a standard procedure for financial macroeconomic variables, the unit root test is utilized to ascertain the stationarity of the data and to eliminate the possibility of serial correlation. The effects of financial inclusion and economic growth are then evaluated using a thoroughly modified OLS. To address the study's primary objectives, three models are specified. Financial inclusion is contingent on the first factor, followed by an estimation of financial inclusion's effect on economic growth and a threshold effect analysis.

Financial Inclusion Macroeconomic determinants model is as follows

$$FII_i = \alpha_0 + \alpha_{1i} EG_i + \alpha_{2i} Z_i + e_i \quad \text{.....3.3}$$

Using this model, the macroeconomic determinant of financial inclusion will be examined and determined.

Financial Inclusion-Economic Growth Nexus Model

The growth model is specified as follow:

$$EG_i = \alpha_0 + \alpha_{1i} FII_i + \alpha_{2i} Z_i + e_i \quad \text{.....3.4}$$

where EGi,t represents the five measures of economic growth (RGDP, MGDP, IGDP, AGDP, SGDP) ; FII (PCA-constructed financial inclusion composite index) at time t ; i is a coefficient; Z represents the various control variables; and eit is the random error term.

3.6.0 Economic Growth Threshold Effects of Financial Inclusion

To further examine the catalytic effect of financial inclusion on economic growth in Nigeria and to determine the threshold value of financial inclusion that would stimulate economic growth, the study specified a quadratic equation that includes the squared value of financial inclusion, as shown in the equation below. The expression

$$EG_i = \alpha_0 + \alpha_{1i} FII_i + \alpha_{2i} Z_i + \alpha_{3i} FII_i^{\,2} + e_i \quad \text{.....3.5}$$

By estimating this equation and taking the first differential we derived the threshold effects as:

$$Threshold\ value\ of\ FII_{\ GDP} = \frac{-\alpha_{1i}}{2\alpha_{3i}} FII \quad \text{.....3.6}$$

The coefficients $\_\alpha_{1i}\ and\ \alpha_{3i}$.are derived from the estimation of equation 3.6. If $\frac{-\alpha_{1i}}{2\alpha_{3i}}$ is positive, the threshold value of FII will be the minimum financial inclusion required to stimulate economic growth. If $\frac{-\alpha_{1i}}{2\alpha_{3i}}$ is negative, the estimated value of the financial inclusion at the mean value will be the optimal financial inclusion beyond which higher financial inclusion will be detrimental to economic growth. Consequently, the threshold provides the optimal level of financial inclusion necessary to stimulate economic growth in Nigeria.

4.0 FINDINGS AND DISCUSSION

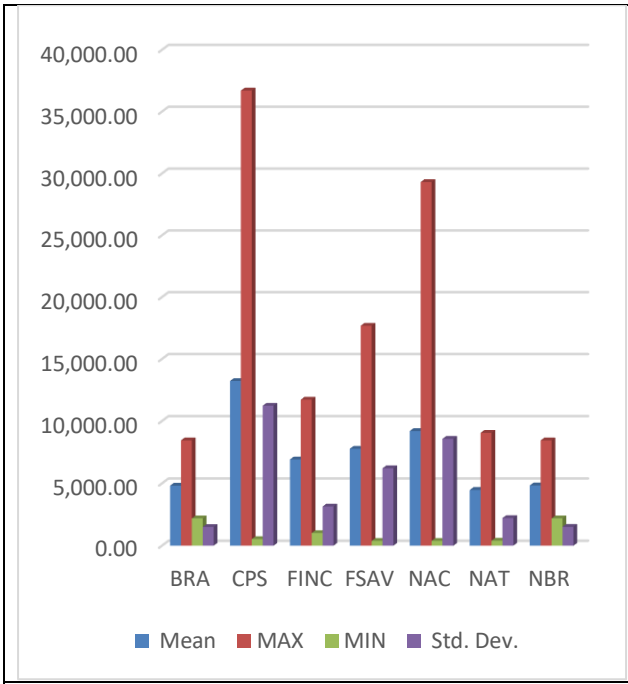
4.1 Summary of the Descriptive Statistics

Table 2 shows the results of a descriptive statistical analysis for the variables of financial inclusion and economic growth to better understand their characteristics. As indicated by the standard deviations, the description analysis reveals a modest variation in the level of financial inclusion and economic growth across the various economic sectors and financial inclusion measures. This disparity is also more pronounced among the various measures of financial inclusion. Therefore, it is essential to evaluate and investigate the relationship between the two variables.

Table 2: Descriptive Statistics Analysis

	Mean	MAX	MIN	Std. Dev.
AGDP	16,809.76	45,010.51	1,508.41	12,600.00
BRA	4,817.85	8,451.00	2,193.00	1,503.15
CPS	13,219.92	36,706.97	530.37	11,231.65
EXR	94.09	154.29	64.41	27.88
FINC	6,921.76	11,721.82	1,013.59	3,144.04
FSAV	7,780.42	17,684.33	385.19	6,211.47
IGDP	19,770.93	67,071.16	2,328.41	17,535.35
INF	13.4	23.81	6.56	4.64
MGDP	8,071.37	31,912.19	984.08	8,277.62
NAC	9,202.29	29,306.05	385.19	8,573.70
NAT	4,476.96	9,055.33	399.71	2,218.42
NBR	4,834.78	8,451.00	2,193.00	1,510.21
REMT	3,957.09	9,168.23	1,274.54	2,491.48
RIR	11.49	18.88	6.00	3.07
SGDP	36,811.59	82,649.58	3,093.38	27,205.34
TOP	19,710.21	41,598.67	2,930.75	12,176.18
GDP	74,287.07	197,898.70	7,062.75	57,084.91

Source: Author Computation



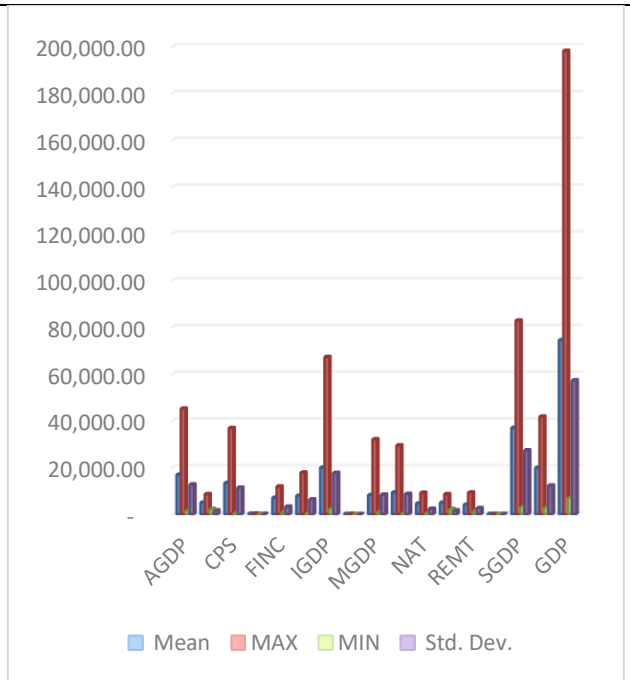


Figure 1: Comparative Statistics of Financial inclusion measure and Index

4.2 Financial Inclusion Index

Our investigation began with the creation of the financial inclusion index. As a first step, we examined the relationship between the six financial inclusion measures. The six variables were substantially connected, as expected. Except for the number of ATMs per 1000 adults, the other indicators in Table 3 are significantly connected. This indicates that they cannot be employed in the same model at the same time, necessitating the requirement to change the variables.

Table 3: Construction of Financial Inclusion Indices for Nigeria

	BRA	CPS	FSAV	NAC	NAT
CPS	0.86				
FSAV	0.83	0.98			
NAC	0.84	0.99	0.96		
NAT	0.29	0.62	0.57	0.68	
NBR	0.99	0.86	0.83	0.84	0.30

Source: Author Computation

FII= 1.043*BRA-1.555*CPS+0.963*FSAV+0.738*NAC+1.732*NAT+0.086*NBR……4.1

As previously described in the section on methodology, a financial inclusion index is calculated using PCA based on Eigenvalues and the proportion of variation explained by each component as the financial inclusion of the various financial inclusion indicators as shown in Table 4.

Table 4. Principal Components Analysis: Eigenvalues

Principal Component	Eigenvalue	Variance (%)	Cumulative (%)
1	4.927	82.12%	82.1%
2	0.892	14.86%	97.0%
3	0.158	2.63%	99.6%
4	0.021	0.34%	100.0%
5	0.003	0.05%	100.0%
6	0.000	0.01%	100.0%

Source: Authors' own computations.

The results of the PCA analysis indicate that the first three principal components explain the most variance (99.6%) and have an eigenvalue greater than one (1). As a general rule, components with an eigenvalue greater than one and a variance higher than the mean can be used for estimation. Thus, it is possible to conclude that the first three principal components are more significant for constructing the composite index for financial inclusion.

Table 5 displays the eigenvectors for the principal components analysis, and the coefficients for each PC vector are used to calculate the Nigerian financial inclusion index. The sum of the coefficients for each variable is then used to formulate an equation that is used to produce a new series that represents the estimated composite financial inclusion index.

Table 5. Principal Components Analysis: Eigenvalues.

Variable	PC 1	PC 2	PC 3	PC 4	PC 5	PC 6
BRA	0.411	-0.399	0.407	0.088	0.271	0.652
CPS	0.446	0.062	-0.283	-0.274	-0.750	0.282
FSAV	0.435	0.034	-0.607	0.615	0.244	-0.059
NAC	0.444	0.133	-0.146	-0.684	0.497	-0.221
NAT	0.275	0.815	0.459	0.221	-0.017	0.016
NBR	0.412	-0.393	0.392	0.148	-0.240	-0.665

Source: Author Computation

where FII is the financial inclusion index, NAC represents the number of deposit accounts per 100,000 of the population (access), BRA measures the number of branches per 100,000 of the population (access), NAT is the number of ATMs per 100,000 of the adult population (access), CPS measures private domestic credit gauged by GDP (usage), FSAV is the saving and deposit account with commercial banks and NBR is the number of branches per 1000 km2 (availability). As indicated in the Figure 4 below, the constructed financial inclusion index correlates significantly more with the availability than usage and accessibility.

This suggested that availability is the most predominant financial inclusion measure adopted and implemented in Nigeria. The pattern and trend of the composite financial inclusion index is highly correlated with ATM deployment and bank branching. This reflects the most utilized financial inclusion product and services by the mostly excluded economic households in Nigeria. Evidently, despite this remarkable correlation, the composite financial inclusion index fluctuated significantly and experienced a sharp decline in 2008 to 2009 due to the financial crisis of 2008 and also in 2022 due to the recent demonetization that affected the use of the ATM and utilization of bank facilities.

This means that there should be conscious efforts by the government and private sector to improve access, availability and usage of financial resources in Nigeria. This suggest that macroeconomic development may have significant influence in the capacity of financial inclusion strategy to significantly stimulate economic

growth and also affected by macroeconomic conditions. The next section investigates macroeconomic determinants of financial inclusion.

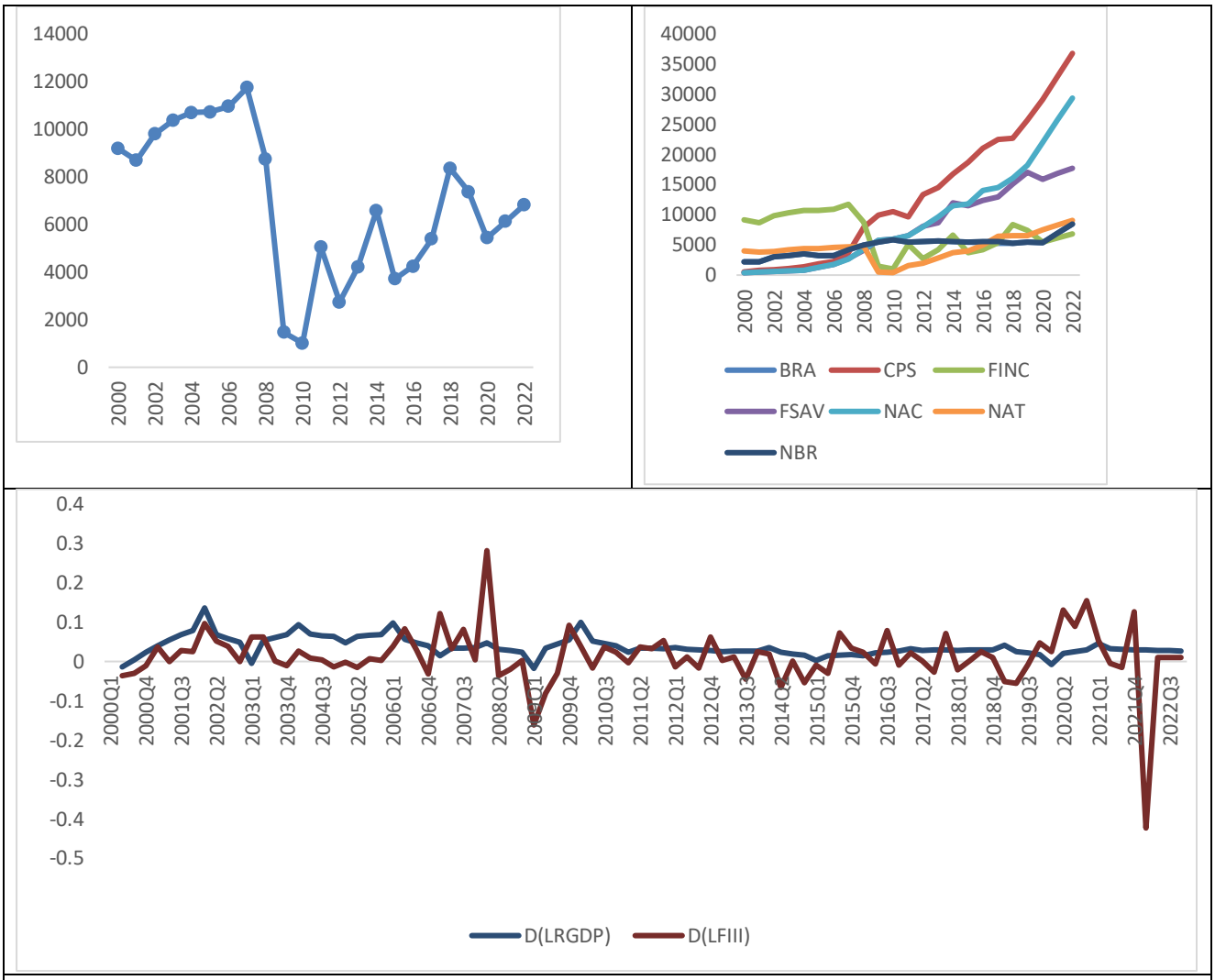


Figure 2: Constructed Financial Inclusion Indices and Indicators

Source: Author Computation

4.3 Determinants of Financial Inclusion

Table 6 summarizes the findings of the investigation of the macroeconomic determinants of financial inclusion. Economic growth and remittance income from abroad, as indicated in Table 6, play an important role in driving financial inclusion in Nigeria. Also important in increasing financial inclusion in Nigeria are trade openness and financial development, exchange rate and inflation.

However, it appears that interest rates play a minor and inconsequential influence in fostering financial inclusion in Nigeria. More importantly, both interest rates and financial development appear to be detrimental to financial inclusion. There are numerous explanations for such an unexpected relationship. The low rate of interest, which is not appealing and competitive, does not motivate individuals to utilize banking and financial institutions. The recent uncertainty and fear of financial closure is also a fright for the prospective financially excluded to avoid the formal banking system.

The beta coefficients were calculated to determine the proportional contribution of macroeconomic variables to financial inclusion. The most important driver of financial inclusion is remittance. Financial inclusion responds more than proportionally to increases in financial flows from abroad. Similarly, in Nigeria, real economic growth is the second most important driver of financial inclusion. A 1% rise in output and economic activity in the country will result in a 2% increase in the number of accounts opened, ATM demand, financial savings, and even access to financial products other than ATMs.

However, the negative impact of financial development as measured by broad money supply suggests that financial inclusion has a falling marginal return. The rate of new entrants into the formal financial system decreases as the financial industry develops. As a result, there is a point at which financial incentives, policies, and interventions may not result in increased financial inclusion because the majority of the financially excluded would have joined. Inflation and exchange rates increase the use of financial services, but they are less important than the real interest rate and trade openness.

Table 7: Macroeconomic Determinants of Financial Inclusiveness

	Coefficient	**Relative Significance**	**P-values**
LREMT	1.592(3.061) **	1.465	0.003
LRIR	-0.311(-1.311)	-0.131	0.193
LRGDP	1.675(1.816) *	2.733	0.073
LTOP	0.455(11.651) **	0.031	0.000
LBMS	-2.471(-4.050) **	-2.668	0.000
LREER	0.136(2.220) *	0.015	0.029
LINF	0.171(4.800) **	0.011	0.000
Adjusted R-squared	**0.390**	**S.E. of regression**	**0.565**
F-statistic	**9.299**	**Prob(F-statistic)**	**0.000**

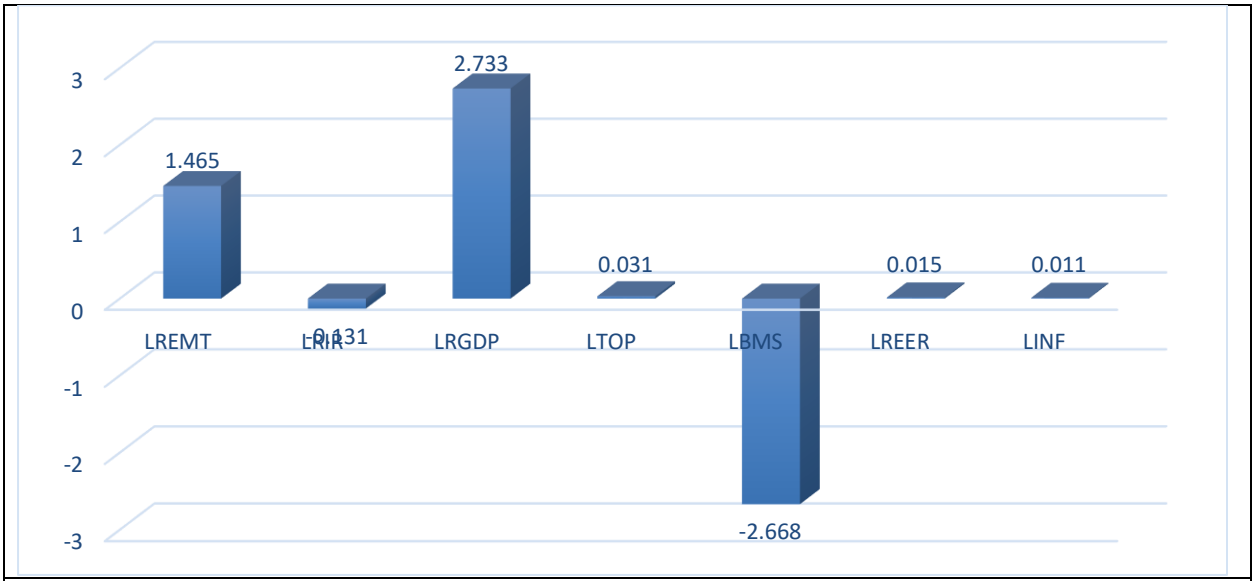


Figure 3: Macroeconomic Drivers of Financial Inclusion

Source: Author Computation

4.4.0 Results of Financial Inclusion Impact on Economic Growth

In addition to financial inclusion, other macroeconomic factors such as inflation and financial development play an essential role in promoting economic growth in Nigeria, according to an analysis of the study's findings. Given the aforementioned findings, additional efforts were made to confirm a threshold relationship between financial inclusion and economic growth. Regardless of how economic development is measured, financial inclusions have a negative impact on economic growth.

This result is consistent with the findings of previous researchers who discovered a significant negative relationship between these variables in the short term (Seven and Yetkiner 2016; Law and Singh 2014; Gourène and Mendy 2017; Collins and Ng'weno 2018; van Wyk and Kapingura 2020). One of the reasons for the negative relationship, according to Law and Singh (2014) and Gourène and Mendy (2017), is the high inequality in Nigeria, the low level of domestic saving, and the high dependence on foreign capital sources. A low level of financial inclusion and a high concentration of per capita income among a limited group of individuals could expose the financial sector to more economic crises than growth. Collins and Ng'weno (2018) state that despite the expansion of financial services in recent years, there is no obvious evidence that financial access has improved the lives and per capita income of the masses.

Table 8: Regression Analysis of Financial Inclusion Impact on Economic Growth

Variables	Aggregate GDP Coefficients	Agricultural GDP Coefficients	Manufacturing GDP Coefficients	Services GDP Coefficients	Industrial GDP Coefficients
Financial Inclusion	-0.037 (1.504)	-0.014 (-0.112)	-0.110** (-3.561)	-0.233** (-2.477)	-0.118 (-1.377)
Inflation Rate	0.885*** (0.289)	0.011 (0.235)	0.224** (3.533)	-0.213** (-6.185)	-0.066** (-2.094)
Exchange Rate	0.179 (0.045)	0.438** (6.505)	-0.031 (-1.712)	0.252** (5.118)	0.214** (4.748)
Interest rate	-0.105*** (0.003)	-0.030 (-0.619)	0.023 (0.343)	0.156** (4.403)	0.076** (2.358)
Financial Development	0.684*** (0.054)	0.889** (21.551)	0.847** (2.899)	0.962** (31.866)	0.812** (29.335)
Trade Openness	1.035*** (0.105)	-0.125 (-1.730)	-0.010 (-0.150)	0.059 (1.112)	0.135** (2.779)

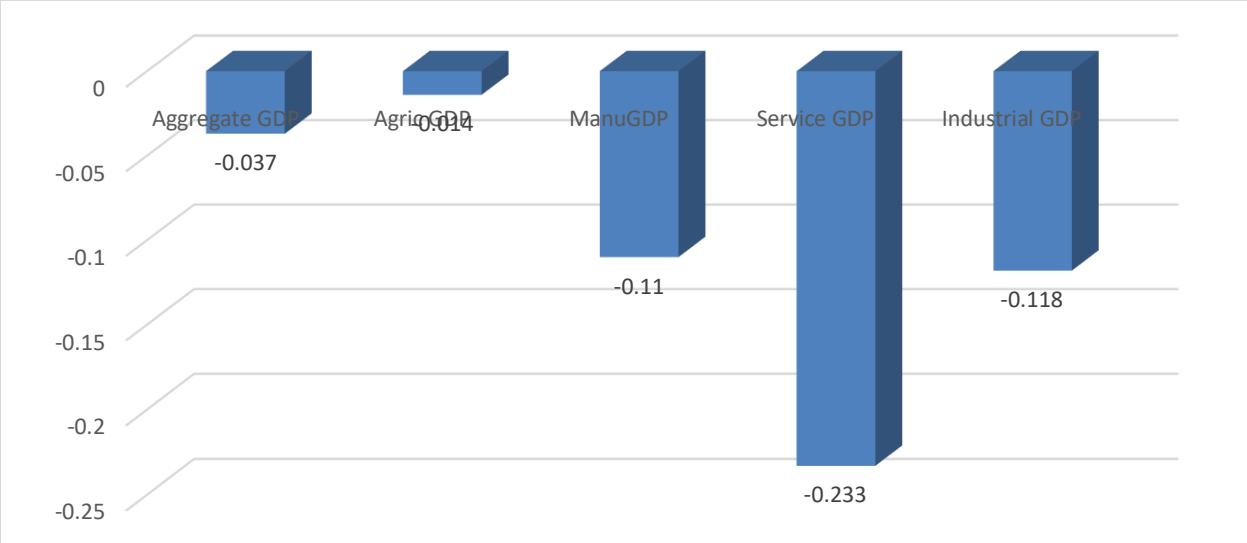


Figure 4: Financial Inclusion Impact on Economic Growth
Source: Author Computation

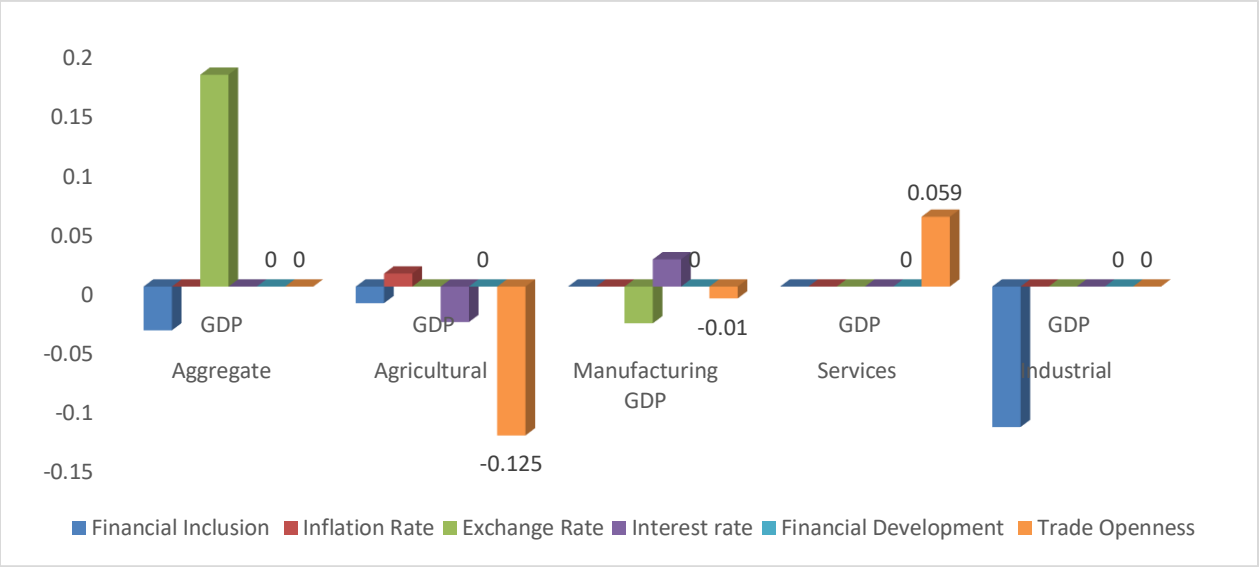


Figure 5: Financial Inclusion and other determinants of Economic Growth
Source: Author Computation

4.5 Threshold Effect of Financial Inclusion on Economic Growth

The introduction of the interactive term, however, demonstrated a significant positive relationship between financial inclusion and economic growth. This indicates that the relationship between financial inclusion is not linear and rigid. Consistent with the findings of other researchers (Kim et al., 2018; Ali and Khan, 2020; Fanta and Makino, 2019), this demonstrates that inclusive finance for the marginalized population and economic growth advance together.

On the premise of the preceding findings, it can be inferred that financial inclusion will increase individual participation in the economy and, consequently, Nigeria's economic growth. Therefore, it is essential for policymakers and regulators to develop and implement strategies, policies, and regulations that promote and enhance financial inclusion in the region. To determine the threshold at which financial inclusion promotes economic development, it is necessary to compute the minimum level of financial inclusion.

Consequently, the threshold analysis reveals a significant positive correlation between financial inclusion and economic growth. Table 9 provides a summary of the extent of the effect of financial inclusion and the threshold. It shows that for financial inclusion to consistently grow by at least 3%,

while for agricultural sector 2%, manufacturing 128%, service sector 1% and industrials sector about 48% to have positive significant impact on economic growth.

.**Table 9: Regression Analysis of Financial Inclusion Impact on Economic Growth**

Variables	Aggregate GDP Coefficients	Agricultural GDP Coefficients	Manufacturing GDP Coefficients	Services GDP Coefficients	Industrial GDP Coefficients
Financial Inclusion	-3.613** (-3.031)	-2.738 (-1.549)	-24.458** (-9.953)	1.710 (1.079)	-14.854** (-9.579)
Trade Openness	0.231** (4.350)	-0.031 (-0.398)	0.092 (0.844)	0.180** (2.553)	0.716** (10.379)
Exchange Rate	0.292** (5.810)	0.507** (6.803)	0.441** (4.263)	0.227** (3.398)	0.207** (3.170)
Interest rate	0.071 (1.856)	0.011 (0.202)	-0.090 (-1.148)	0.161** (3.191)	-0.063 (-1.275)
Financial Development	0.824** (15.773)	0.817** (10.556)	1.203** (11.173)	0.904** (13.029)	0.603** (8.881)
Interactive Financial Inclusion	0.203 (2.927)	0.172 (1.670)	1.437** (10.043)	-0.126 (-1.367)	0.873** (9.674)
Adj R-sq	0.986664	0.977942	0.963800	0.986	0.985421
Threshold Value	**2.7%**	**1.7%**	**127.9%**	**0.78%**	**47.2%**

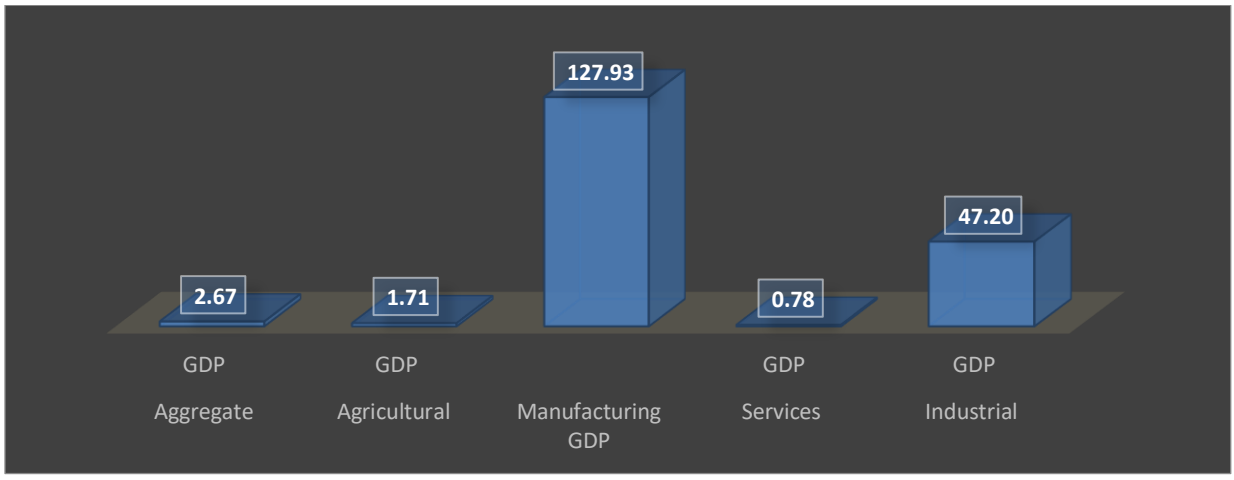


Figure 6: Financial Inclusion Threshold level for Nigeria

5.0 CONCLUSION AND POLICY RECOMMENDATIONS

5.1 Conclusion

Based on the findings of this paper, there is a positive and statistically significant correlation between financial inclusion and economic growth. We also conclude that financial inclusion is a significant driver and a catalyst of economic development and its components. Along with remittances, economic growth also catalyzes financial inclusion, demonstrating synergy and complementarity. This indicates that the increasing availability of financial services improves economic performance and contributes to Nigeria's sustained economic growth and development.

The key implications of the findings from the study are that financial inclusion must be understood as being inextricably linked to the growth of the financial sector. Banking operations, including account opening, deposit-taking, payment processing, microfinance banking, mortgages, and insurance must be brought closer to the people if financial inclusion is to be realized. In other words, all goods and services that promote investment, generate employment, and stimulate economic development must be readily available and accessible. Inevitably, Central banks should play a crucial role in fostering an environment conducive to financial access. It is their responsibility to establish a balance between facilitating access to financial products and safeguarding banks against risk and insecurity.

5.2 Recommendations

With an exhaustive work on the need to use financial inclusion as a catalyst for economic growth, the following recommendations are made to ensure the actualization of financial inclusion as a veritable tool for economic growth:

i. Banks should ensure that remittances to the country are done through receivers' accounts so that financial inclusion is deepened. Majority of current remittances coming to the country are done for transactions purpose only and not to develop banking services. The use of means of identification in remittances without a detailed link to accounts should be discouraged. This will help the government in managing forex challenges and increasing the financial inclusion level in the country.

ii. Financial inclusion will be an unrestrictive catalyst for economic growth when banks, the Central Bank and all other financial institutions have a detailed plan for SMEs. This is done by strengthening the infrastructure that supports financial transactions, including laws like the finance acts, regulations of making SMEs the hub of our development and creating institutions to register and enforce collateral, insolvency regime and credit reporting tools

iii. Nigerian Financial institutions (especially banks) must develop products tailored to the needs of those who are financially excluded. These include "tier 1" bank accounts, which are entry-level accounts for individuals that can be opened with only the NIN, BVN, or facial recognition with thumb printing that brings up the complete NIN details like the format utilized by the BVAS machine during general elections. This will enable the financially excluded to surmount the arduous documentation process, especially the use of electric and water bills, and lengthy and convoluted form-filing requirements. The use of a registered phone number, the last ten digits of a BVN or NIN, or both, as an account number will also eradicate the complexity of having multiple account numbers. The Bankers Committee needs to work with various agencies like NIMC, CAC, and Immigrations to make accessibility to financial inclusion seamless.

iv. For Macroeconomic stability, price stability is needed which has a positive impact on SMEs and other sectors access to finance which is the hub of financial inclusion. Banks are to finance manufacturing, agricultural and service sectors and ultimately the culture and entertainment industry which will lead to low inflation is a key signal of macroeconomic stability, associated with lower risk perception, stronger private sector confidence and demand for credit, and thus increased credit supply to SMEs and other sectors needed for economic growth.

v. Nigerian financial institutions spearheaded by the banks need to recognize the necessity of expanding their services to financially excluded clients. From 56.8% in 2016 to 63.2% in 2018, the rate of financial inclusion increased. 70% was the objective for 2020. There is still a vast market to be explored, and banks can utilize technology, service design, and marketing more effectively to provide affordable financial services. More of the financially excluded are in the rural and unbanked areas. Many of them are traders that have huge lump of money outside the banking system. There may be the formation of one bank platform by the Bankers' Committee to drive the financial inclusion in remote areas.

vi. The data generated by mobile devices and USSD present an opportunity for institutions to incorporate artificial intelligence into their services. This will allow them to gain a deeper understanding of their current and potential customers, and to create products that meet their requirements.

vii. It is essential that financial products and services are affordable. Numerous Nigerians have expressed dissatisfaction with banking fees. Banks, the Bankers Committee and the Central Bank should implement fees waiver for low-income customers or permitting free monthly online transfers and withdrawals up to a certain limit. These reduced fees would significantly contribute to the financial inclusion of vulnerable consumers.

viii. The growing significance of mobile money agents is also an opportunity to close the gap between banks and customers. Banks must continue to raise awareness about mobile money agents and manage their relationships with the agents in order to deliver financial services effectively.

ix. Financial inclusion is associated with more effective fiscal policy, including through better tax collection. Therefore, the tax system should be more liberalized to help affordability, packability and increasing the tax basket of the nation. This is necessary as seen in the study so that we can help trade openness and other macroeconomic factors.

x. In addition to the central bank, governments must be responsive to enacting rules and regulations that promote the growth and inclusion of the financial sector. Regulations, such as the documentation needed to establish a bank account, are of the utmost importance. Potential customers may be excluded if an established location or evidence of employment in the official sector is required. Innovative technologies such as mobile finance will require new regulations. Laws allowing institutions to sell new financial products may also be necessary, and central banks can play a significant role in a number of these matters.

xi. Also, individuals, families, and small businesses must be empowered by financial inclusion, particularly in impoverished communities, and they must have access to well-functioning financial systems that can empower them and strengthen economies. Government, banks, and other financial institutions must view financial inclusion as a crucial driver of economic growth, as opposed to a means of generating income or placing small businesses and individuals into tax baskets.

xii. To support policies that enable an increasing number of individuals to seize opportunities to better their lives, the government must continue to increase our understanding of the issues at hand and develop and disseminate innovative solutions. Clearly, financial inclusion is not the primary responsibility of the government. There is a need for a significant number of additional actors, including the commercial sector and civil society. The newly included must be actively assisted in

utilizing the services that have been made available to them. Training is required, particularly in the areas of recordkeeping, budgeting, and planning for small businesses. Unemployed and underemployed individuals must also labour in order to save and invest.

xiii. Similarly, the growing demands of the economy's productive sectors increase the demand for financial services. In order to achieve the United Nations' sustainable development goals for financial inclusion and economic growth in Nigeria, it is crucial to increase the availability, accessibility, and affordability of formal financial products and services to all citizens, regardless of their economic status.

xiv. Banks through the Bankers' Committee should deepen financial inclusion by using the CRUIP model of Saibu and Oshadare (2023) regarded as **C**ombining Financial and Non-Financial Services to all citizens of the country without reservations. **R**eaching under-served market segments like the extractive and entertainment Industry. **U**sing financial technology to advance services that are attractive, compelling and tailor-made for customer's needs. **I**ntegrating financial services to enhance risk management and **promoting** informed use of financial services through partnership with schools, organisations, NGOs, and undertaking a lot of CSR initiative that leads to more people having access to financial services.

xv. This study was limited to the banking sector as the hub of financial inclusion. Thus, the implication of these findings needs to be extended to other components of the financial services industry so that their inputs to the growth of financial inclusion can be extracted and well documented. Hence, this study suggests that future researches focus on other components of the financial services industry apart from the banking sector that can aid financial inclusion. The future research should also focus on how to tap from financial inclusion experience in developed and developing countries in the world, especially the Asian and European countries.

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