

## Financial Inclusion, Economic Growth and Macroeconomic Stability in Nigeria

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### Abstract

*This study investigated the impact of financial inclusion on economic growth and macroeconomic stability in Nigeria (1980 – 2022). Using secondary data obtained from the Central Bank of Nigeria (CBN) Statistical Bulletin (various years) and World Development Indicators (WDI, 2023), the study employed the Autoregressive Distributed Lag (ARDL) technique in analysing the data. It was found that financial inclusion may not necessarily improve economic growth in the short run; it may not provide macroeconomic stability in the short run; financial inclusion enhances the growth of the economy in the long run, but the growth rate is slow; and financial inclusion can stabilise the macroeconomy (price level) in the long run. It was recommended, amongst other things, that a robust, stable and sustainable financial system be developed to deepen financial inclusion (like expanding credit and money supply, amongst other things) to encourage economic growth and stabilise the economy.*

**Keywords:** Financial inclusion, growth, macroeconomic stability and financial deepening

**JEL Classification:** E24, G21, G24, G28

### 1.0 Introduction

Financial inclusion has emerged as a topic of global interest, capturing the attention of policymakers, scholars, and stakeholders worldwide. In recent years, countries have been actively working to bridge the significant gaps in access to finance, setting formal targets for financial inclusion. The understanding that access to financial services is critical in reducing extreme poverty, promoting shared prosperity, and fostering inclusive growth and macroeconomic stability is more prevalent than ever.

Financial inclusion has been a cornerstone of recent economic reforms and policy adjustments in Nigeria. This development underscores a growing recognition of the inherent gap in financial inclusion within the economy. For instance, the gap in access, use and quality of savings accounts in financial institutions and the availability of credit and insurance products among different strata of the economy is still large (Onwioduokit, 2007; Kama & Adigun, 2013). However, findings by scholars show that economies with a higher degree of financial inclusion tend to reflect higher levels of economic growth and productivity (Khan, 2011; Khan, 2012).

Some scholars have presented evidence that the expansion in access to and use of financial services, especially by the poor and remotely excluded members of the population, leads to improved levels of income, poverty alleviation and improved output (Beck et al., 2000; Beck & Torre, 2006; Beck et al., 2007; King, 2012a&b; Onaolapo, 2015). Others believe that financial inclusion is a powerful tool for improving welfare and enhancing macroeconomic stability (Beck et al., 2004; Chibba, 2009; Hannig & Jansen, 2010; Cull et al., 2012; Morgan & Pontines, 2014; Park & Mercado Jr., 2015; Kim, 2016; Oz-Yalaman, 2019). However, there is a strand of argument that the improvement or otherwise in financial inclusiveness in any economy is a product of the interface between the demand side and the supply side in the financial system of that economy (European Commission, 2008; Reserve

Bank of India [RBI], 2008; Rahim et al., 2009; Chhikara & Kodan, 2011). So, demand-side issues like poverty that reduce the propensity to save and invest could reduce demand for financial services, while the underdeveloped financial system may stifle access to credit for investment – a supply-side problem. Recent user (demand-side) studies, especially country-specific ones (e.g., Brune et al., 2011; Bruhn & Love, 2012; Demirgüç-Kunt & Klapper, 2012), are giving deeper and more critical clues about specific ways in which financial inclusion enhances income equality and reduces poverty.

Other arguments have been on financial inclusion enhancing redistribution and balanced distribution of capital, thereby aiding even the growth of non-financial firms – a case of micro stability. The macro-level evidence at the firm level indicates that financial development is a function of more efficient allocation of capital and the rate of entry of new firms (Wurgler, 2000; Klapper et al., 2006; Beck et al., 2005). Despite the preceding, there seems to be conspicuous silence in the literature, in terms of empirical evidence, as to how financial inclusion leads to macroeconomic stability, especially in Nigeria. For example, Cull et al. (2012) argued that if financial inclusion leads to a healthier household and small business sector, it could also contribute to enhanced macroeconomic (and financial system) stability but conceded that there seems to be no pointer to specific research that supports that conjecture at this point, thereby calling for efforts in this direction.

Therefore, this study's objective is to examine the impact of financial inclusion on economic growth and macroeconomic stability in Nigeria using the Autoregressive Distributed Lag (ARDL) method. The focus will be answering basic questions about whether financial inclusion can induce economic growth and stabilise the macroeconomy. The rest of the study is organised thus: Section 2 gives an abridged overview of financial inclusion efforts in Nigeria, while the literature review is presented in section 3. Section 4 presents the methodology for the study, while the empirical results are discussed in section 5. Section 6 provides the conclusion and recommendations.

## **2.0 Overview of Financial Inclusion in Nigeria**

The issue of financial exclusion has been a significant economic challenge that different governments in Nigeria have given attention to for about four decades now (Kama & Adigun, 2013). Before the recent efforts at promoting financial inclusion, the Nigerian economy was typically a cash-based economy with a significant stock of narrow money as a form of currency outside the banking system. However, the government has made efforts to promote financial inclusion. Among the first major policies of the government inclined towards promoting financial inclusion was the adoption of the rural banking programme in the late 1970s (Onaolapo, 2015).

The Central Bank of Nigeria introduced the scheme in 1977 to establish one bank branch in each of Nigeria's local government areas. The commercial banks were laden with targets to establish rural branches under the scheme. It was, therefore, the expectation of the government that the rural banking scheme would assist in the transformation through the following: (i) Provision of a platform for the mobilisation of savings in the rural areas through the diffused network of branches in all parts of the society; (ii) Encouragement of banking habits among the largely agrarian rural population; (iii) Provision of credit to aid the growth of the small-scale industries and entrepreneurs; and (iv) Enhance balanced development and eventual reduction in the rural-urban migration (Onaolapo, 2015).

The banking industry crisis of the 1990s diminished the hope and confidence that was growing within the populace in the banking industry. This issue was further exacerbated by reckless spending of the political class, resulting in a continuously swelling volume of currency outside the banking system. Consequently, the currency ratio outside the banking system grew to 47.7 per cent at the end of the 1990s. As a move against the debilitating effect of the banking industry crisis in the 1990s, the government implemented policies like the Bank Consolidation Programme of 2004 to promote the financial sector deepening and prompt use of financial services. This depleted the ratio of currency outside the banking system to 38.2 per cent by the end of 2005 (Oluba, 2008).

As of 2005, the Nigerian financial sector has experienced appreciable levels of activities from the government and the regulatory authorities to promote policies to improve financial inclusion. The CBN

has been leading in encouraging and supporting products targeted at low-income earners, the poor and the financially excluded. The government has focused more on interventionist financing arrangements and building institutions and frameworks that promote financial inclusion. Amongst these efforts of the government, in recent times, has been the campaign advanced by the CBN for banks to commit a sizeable investment in low-cost branchless service channels like ATMs, Point of Sale (POS), mobile money and other e-channels that the banking institutions keep churning out.

The cashless policy, adopted to accelerate the use of modern electronic payment channels, was implemented in pursuit of three primary objectives: to develop and standardise the payment system, reduce banking costs to drive financial inclusion and enhance the effectiveness of monetary policy. This means the policy was expected to drive financial inclusion based on the implicit assumption that depleted banking costs and a more efficient payment system will encourage more people and businesses to embrace the formal financial service platforms. Today, ATMs, POS and Mobile money channels can be said to have recorded considerable success in achieving their purpose of financial inclusion quite extensively (Kama & Adigun, 2013).

### **3.0. Literature Review**

This section comprises an abridged conceptual framework, theoretical framework and empirical literature. We begin with the conceptual framework.

#### **3.1. Conceptual and Theoretical Framework**

The relationship between financial inclusion, economic growth and macroeconomic stability can be illustrated in a conceptual framework. Increased financial inclusion leads to higher savings mobilisation, improved access to credit, and enhanced financial intermediation, stimulating economic growth. This growth, supported by a more inclusive financial system, can contribute to macroeconomic stability through increased employment, reduced poverty, and enhanced resilience to external shocks. Specifically, Financial inclusion has been recognised as a critical driver of economic growth and macroeconomic stability in developing countries like Nigeria. It refers to the access and usage of formal financial services by individuals and businesses, particularly those in the low-income segments of the population. In Nigeria, financial inclusion initiatives have been promoted by the Central Bank of Nigeria (CBN) through various policies and programmes, such as the National Financial Inclusion Strategy (NFIS) and the licensing of mobile money operators.

On the other hand, economic growth is the increase in a country's production of goods and services over time. Economic growth is essential for improving living standards and reducing poverty in Nigeria. Access to finance through formal financial services can facilitate investment, entrepreneurship, and consumption, leading to increased economic growth. Studies like that of Beck et al. (2007) have shown a positive relationship between financial inclusion and economic growth in developing countries. Moreover, Macroeconomic stability involves maintaining stable prices, low inflation, stable exchange rates, low unemployment rates, low poverty rates and a sustainable fiscal policy. Macroeconomic stability is crucial for sustainable economic development. Financial inclusion can contribute to macroeconomic stability by reducing income inequality, enhancing financial sector stability, and promoting overall economic resilience. According to Demirgüç-Kunt et al. (2018), financial inclusion can help mitigate the negative impacts of economic shocks and crises.

Financial inclusion, economic growth, and macroeconomic stability are interconnected aspects of economic development. A theoretical framework linking these elements can be developed by examining how financial inclusion impacts economic growth and contributes to macroeconomic stability. As scholars like Barro (1991) opine, the theoretical link to this interconnection is capital accumulation, where scholars agree that financial inclusion increases access to credit, allowing for more significant capital accumulation and investment in productive activities. Another is the human capital development link, where theorists like Mishkin (2000) argue that financial inclusion facilitates access to education and healthcare by enabling better financial planning and investment in human

capital. There is also the innovation and entrepreneurship theory, where scholars (e.g. Demirgüç-Kunt & Klapper, 2012) have posited that financial inclusion can lead to enhanced economic growth by fostering savings mobilisation, investment, entrepreneurship, and access to credit for small and medium-sized enterprises (SMEs).

Aside from the preceding, two theoretical models stand out: the inclusive growth model and the risk sharing and financial intermediation model. Inclusive models suggest that broad-based access to financial services leads to more inclusive growth, supporting macroeconomic stability (Klapper et al., 2016). On the other hand, risk-sharing and financial intermediation hold that financial inclusion facilitates better risk-sharing mechanisms and enhances the efficiency of financial intermediation, contributing to economic stability (Allen et al., 2012).

### 3.2. Empirical Literature

As seen in Chhikara & Kodan (2011) and Rajan & Zingales (2003), empirical evidence has supported the position that financial inclusion contributes to economic growth. Burgess & Pande (2003) and Kodan & Chhikara (2013) have also found a positive relationship between financial development (with particular emphasis on inclusion) and growth at the industry level, arguing that financial inclusion is a gateway to inclusive and equitable growth. Others who have corroborated this finding are King & Levine (1993), Levine & Zervos (1998), Aghion & Howitt (1998) and Carbo et al. (2005).

Though some scholars seem to have observed the tendency in which financial inclusion can increase financial instability (Mehrotra & Yetman, 2015 and Garcia, 2016), others do not observe such a direct negative effect. Financial inclusion supplements financial services to every individual in the economy (Adalessossi & Kaya, 2015; Kumari, 2017). This implies that broader deposit access would diversify the deposit base, improving the overall financial system's resilience and enhancing the national economy's stability (Camara & Tuesta, 2014; Ambarkhane et al., 2016). Furthermore, financial inclusion acts as a supporting source of finance, providing small and medium firms with working capital and thus promoting and enabling these businesses to perform more efficiently (Cyan-Young & Rogelio, 2015; Migap et al., 2015; Wang & Guan, 2017). These arguments imply a positive or growth-inducing impact of finance on the real economy, an indication that increased access to finance promotes productivity, enhances welfare and alleviates poverty (Onaolapo & Odetayo, 2012; Aduda & Kulanda, 2012; Allen et al., 2013).

Aside from fintech, which has proven to be dependable in driving the process of financial inclusion, scholars have also identified the contribution that rural branching and expansion by commercial banks have made in achieving results for different countries, for example, India (Burgess & Pande, 2003). As more people get integrated into the formal financial sector, they become economically empowered, engage effectively in productive activities and can lift themselves out of poverty as well as grow the economy (Sarma, 2015; Okoye et al., 2017; Siddik et al., 2019; McAleer et al., 2019). Studies on financial development have identified four distinct areas as the driving force of economic growth. The main one is providing a low-cost, reliable means of payment to all, particularly the low-income group (Park & Mercado Jr., 2015; Babajide et al., 2015). This role is quite analogous to that of financial inclusion, especially when the role of financial intermediation is effective and viable, coupled with the issue of effective risk management and reduction of information asymmetry to the barest minimum (Odeniran & Udejaja, 2010; Ross, 2004; Sanusi, 2011 and Danlami et al., 2018).

Finally, most scholars seem to have agreed with the growth-enhancing potentials of financial inclusion. Studies around Africa and Asia, using essential financial inclusion variables and official index (where available), found that financial inclusion/deepening would certainly boost growth, both in the long run and in the short run, though the results have been mixed in the case of Nigeria (Mbutor & Uba, 2013; Chakravarty & Pais, 2013; Joseph & Varghese, 2014; Omojolaibi, 2017; Abdul et al., 2018; Yin et al., 2019)

In summary, the preceding reviews reveal two main opposing conclusions. First, financial inclusion tends to deter economic growth and destabilise the financial system, deterring growth (Mehrotra & Yetman, 2015; Garcia, 2016). Second, financial inclusion can boost economic activities and stabilise the financial system, enhancing growth (Adalessossi & Kaya, 2015; Kumari, 2017). These conclusions raise two vital questions: 1. Which conclusions hold in the present Nigerian economy? and 2. Does financial inclusion directly affect macroeconomic stability in Nigeria, since the dominant perception in the literature has been a positive (negative) impact on economic growth and development? This study seeks to interrogate this perceived gap, focusing on Nigeria.

## 4.0. Research Methodology

### 4.1. Research Design

This empirical work was designed to cover the period between 1980 and 2022. It used secondary data drawn mainly from the Central Bank of Nigeria (CBN) Statistical Bulletin (various years) and World Development Indicators (WDI) 2022. These data were carefully collected with basic theoretical considerations to capture the financial inclusion variables and the basic economic growth and macroeconomic stability variables examined in this work. As the work has reflected, basic mathematical, statistical, and econometric tools were used to investigate the interactions between financial inclusion, macroeconomic stability, and economic growth in Nigeria.

### 4.2. Model Specification

Following the study's objective, we adopt two baseline equations and use econometrics models to capture and test for significance in the stated objectives. The focus of the first model is to investigate the impact of financial inclusion on economic growth in Nigeria. In contrast, the second model looked at the impact of financial inclusion on macroeconomic stability in Nigeria.

$$GDPPr_t = \alpha + \beta_1 FD1_t + \beta_2 FD2_t + \beta_3 LDR_t + \beta_4 LQR_t + \beta_5 LIR_t + \beta_6 INF_t + \mu_t \quad (1)$$

Economic growth refers to a sustained rise in the value of economic activities within a country over time. The growth rate of Gross Domestic Product (*GDPPr*) is often employed when measuring the growth of an economy. This model incorporates a broader view of financial inclusion by employing two financial deepening indicators (*FD1* and *FD2*). *FD1* represents the ratio of Broad Money to *GDP* (*M2/GDP*), while *FD2* is the ratio of Credit to Private Sector to *GDP* (*CPS/GDP*).

The model included other critical financial ratios, such as the loan-to-deposit ratio (*LDR*), Liquidity ratio (*LQR*) of commercial banks and the bank lending interest rate (*LIR*). *LDR* and *LQR* is indicative of an expanded platform for financial inclusion. Inflation (*INF*) is also introduced into the model to control for possible stability. Next is the financial inclusion-macroeconomic stability model.

$$INF_t = \alpha + \beta_1 NBBR_t + \beta_2 LAC_t + \beta_3 DRA_t + \beta_4 LIR_t + \beta_5 EXCH_t + e_t \quad (2)$$

One of monetary policy targets is that financial inclusion should impact price stability (macroeconomic stability). Financial inclusion will enhance domestic production from rural dwellers and increase aggregate supply, leading to market prices falling. *INF* is the inflation rate, *NBBR* is the number of bank branches, *LAC* is total loans and advances of commercial banks as a percentage of *GDP*, and *DRA* is the aggregate of rural bank branches' deposits and loans. Other variables are commercial banks' average lending rate (*LIR*) and the foreign exchange rate of the naira (*EXCH*).

### 4.3. Method of Estimation

The Autoregressive Distributed Lag (ARDL) bounds test procedure, designed by Pesaran et al. (2001), was used to test the long-run equilibrium relationship between financial inclusion, macroeconomic stability and economic growth in Nigeria over the period (1980 – 2020). The ARDL bounds test technique is mainly preferred for its advantages over other cointegration techniques. It can be applied irrespective of the order of stationarity of the underlying variables, provided they are within the order *I*(0), *I*(1) or a combination of both. Also, the technique can identify between dependent and independent

variables in a series (Pesaran & Pesaran, 1997; Jalil & Feridun, 2010; Esu, 2017). The generalised form of the ARDL procedure for the two equations is presented thus:

$$\Delta\gamma_t = \beta_i + \delta_i\gamma_{t-i} + \delta_i\varphi_{t-i} + \sum_{i=1}^{\rho} \delta_i \Delta\gamma_{t-i} + \sum_{j=1}^{\sigma} \delta_j \Delta\varphi_{t-j} + \mu_{it}$$

Where  $\gamma_t$  is the vector of regressands from the two models earlier stated, while  $\varphi_{t-i}$  is the vector of the regressors from the two models stated earlier.  $\beta_i$  are the drift components,  $\mu_{it}$  captures the white noise in period t and  $\Delta$  is the differenced operator. The terms with summation signs represent the error correction dynamics, while the first parts of the equations correspond to the long-run relationship. The equation for all the variables can be generalised as follows:

$$\gamma = \sigma_i + \sum_{i=1}^l \sigma_{ii} \gamma_{t-i} + \sum_{j=1}^m \sigma_{jj} \varphi_{t-j} + \alpha_i ECT_{t-i} + \omega_{it}$$

Where  $\omega_{it}$  are residual terms (or innovations or shocks) and are assumed to be identically, independently and normally distributed for all the variables in the model. The statistical significance of the lagged error term, that is,  $ECT_{t-i}$  further validates the established long-run relationship between the variables. The estimate of  $ECT_{t-i}$  also underlines the speed of convergence from the short-run toward the long-run equilibrium path in all models. Also, the statistical significance of the estimate of lagged error term, that is,  $ECT_{t-i}$  with a negative sign confirms the existence of a long-run causal relationship using the t-statistic. It is essential to test the causal relation of the variables once the series are cointegrated, and causality must be found in at least one direction. Further, aside from the test explaining the current value of the dependent variables in terms of their lags and the lags of the regressors, it treats all the variables as a set of endogenous variables. The assumption is that there are no exogenous variables in the system.

#### 4.3.1. Diagnostics Tests

One of the basic rules of the application for the ARDL model is that the order of stationarity of the series must be I(0), I(1) or a mixture of I(0) and I(1), otherwise ARDL method becomes non-applicable. Thus, it is necessary to examine the data to ascertain if the series meets the primary requirement, including the need to control the nuisance related to time series data – multicollinearity, autocorrelation and heteroskedasticity issues. Also, to ensure the model's viability, diagnostic and stability tests were conducted to examine models for serial correlation, functional form, and non-normality, aside from the ones mentioned earlier.

#### 4.3.2. Unit Root Test

The unit root test was conducted using the Augmented Dickey-Fuller (ADF) test (Dickey & Fuller, 1979). The ADF test is based on running the following regression:

$$\Delta y_t = \alpha_0 + \alpha_1 t + \phi y_{t-1} + \sum_{i=1}^{\rho} \gamma_i \Delta y_{t-i} + \partial_t$$

Where  $\Delta$  represents the first difference operator, *subscript represents* the relevant variable under consideration and is a random error term. The Phillip-Perron (PP) tests developed by Phillip & Perron (1988) was also employed to test for the unit root.

#### 4.4. Data

The historical data for this study were obtained from WDI and CBN Statistical Bulletin to build a time series data for Nigeria on financial inclusion, macroeconomic stability, and economic growth variables. These variables included real GDP, outstanding loans from commercial banks constructed as a percentage of GDP (LAC), the number of banks in Nigeria (NBBR), aggregate size of deposits and loans from rural branches (demand deposit from rural areas [DRA]) – measuring openness of rural

dwellers to the activities of deposit money banks, inflation (or price stability) – measuring macroeconomic stability, Financial deepening I – constructed as the ratio of broad money (M2) to GDP (M2/GDP), and financial deepening II – constructed as the ratio of credit-to-private-sector to GDP (CPS/GDP). Others include liquidity ratio of banks, commercial banks' lending interest rate and loan-to-deposit rate. This choice of data followed most studies on financial inclusion and growth (Yin et al., 2019). Using annual data, our study employed a small-sample-compliant technique to assess financial inclusion, macroeconomic stability, and economic growth. The choice of annual data is motivated by the structure and nature of financial inclusion and growth.

#### 4.0. Presentation of Result and Analysis of Findings

##### 4.1. Unit Root Test Result

The stationarity test was conducted using the Augmented Dickey-Fuller (ADF) Test and Phillip-Perron (PP) Test. The results are presented in Table 4.1. The results indicated that most of the variables were stationary at first difference [I(1)], with some being stationary both at levels [I(0)] and at first difference [I(1)], respectively, both for ADF and PP. However, one variable - Demand Deposit from Rural Areas (DRA) – was stationary at levels [I(0)] only for ADF and the first difference [I(1)] only for PP. These orders of integration validate the need to apply the ARDL Bounds Testing technique in examining cointegration in the series.

**Table 4.1. Unit Root Test Result**

Variables	Augmented Dickey-Fuller		Phillip-Perron	
	Levels	1 <sup>st</sup> Difference	Levels	1 <sup>st</sup> Difference
DRA	-5.1118(0.0015)**	-	-	-5.4128(0.0004)*
GDPR	-5.0092(0.0013)**	-9.0794(0.0000)*	-5.0053(0.0013)**	-26.5731(0.0000)*
FD1	-	-5.8607(0.0001)*	-	-6.8753(0.0000)*
FD2	-	-4.9490(0.0015)**	-	-4.9224(0.0016)**
LDR	-4.1628(0.0119)***	-5.6985(0.0002)*	-	-7.0518(0.0000)*
LQR	-	-6.2183(0.0000)*	-	-6.8285(0.0000)*
LIR	-	-6.7823(0.0000)*	-	-8.3798(0.0000)*
INF	-	-3.3278(0.0817)***	-3.2533(0.0897)***	-13.0193(0.0000)*
NBBR	-	-4.3718(0.0071)**	-	-3.9326(0.0207)***
LAC	-	-4.8884(0.0019)**	-	-5.0203(0.0013)**
EXCH	-	-5.6955(0.0002)*	-	-4.9942(0.0014)**

Note: \* P<0.01, \*\* P<0.05 and \*\*\* P<0.1. Test assumptions for ADF(PP) include intercept and trend.

##### 4.2. ARDL Bound Test Result

The bounds test for cointegration interrogates the existence of cointegration among variables in the series. An unrestricted VAR model was used to get information on the lag order of variables, which enhanced the computation of the F-statistic to assess the existence or otherwise of cointegration within the series. Also, the Akaike Information Criterion (AIC) was used for its strong precision power while providing better and consistent results for small samples. The computed F-statistic was compared with the critical bound values that Narayan (2004) generated. The critical bounds values by Narayan (2004) are more appropriate for small samples than Pesaran & Smith (2001).

The ARDL Bounds test result is presented in Table 4.2. The result shows that the computed F-statistics of 3.27 and 8.29 for models 1 and 2, respectively, were greater than the critical bounds values of [2.08, 3] and [3.06, 4.15] provided by Narayan (2004) as lower and upper bounds critical values for equations 1 and 2, respectively. The null hypothesis of no cointegration was rejected at 10 per cent and 1 per cent significance levels, respectively. This confirms the presence of cointegration in the variables.

Following these results, it can be concluded that there is a long-run relationship between financial inclusion, economic growth, and the rest of the variables in Nigeria from 1980 to 2022.

### 4.3. ARDL Estimated Result

Upon establishing the cointegration of the variables in the series, it was necessary to estimate a generalised stable ARDL model to reflect generally the initial effects of financial inclusion on poverty, economic growth, inflation and unemployment in Nigeria within the period under investigation. This first stage, ARDL regressions, directly examines the interactive effects of financial inclusion in the two models as it transmits economic performance in the short run. The results are presented in Table 4.2. The estimates in column 1 of Table 4.2 measure the impacts of financial variables on output growth in Nigeria. Though the negative coefficient and statistical insignificance of the lag of real GDP growth imply that growth in the past period may not necessarily be tantamount to growth in the current period, the behaviours of the financial variables also negate theoretical expectations, except for broad money supply-GDP ( $\frac{M_2}{GDP}$  i. e FD1) ratio that interacted positively with growth and was statistically significant. Though these outcomes are worrisome, they are not without possible explanations.

For instance, the ratio of credit-to-private-sector to GDP ( $\frac{CPS}{GDP}$  i. e FD2) indicated that a percentage improvement in it would reduce output growth by about 0.0025, a shortfall from theory.

**Table 4.2: ARDL Estimated Results Generalised Estimates for the Two Models** †

Variables	(1)	(2)
	Regressor: GDPR	Regressor: INF
Demand Deposit from Rural Areas (DRA)		0.0002 (0.1765)
Growth in Gross Domestic Product (GDPR) †	-2.1158 (0.1073)	
The ratio of Broad Money to GDP (FD1) †	0.0134 (0.0879)***	
The ratio of Credit-to-Private-Sector to GDP (FD2) ††	-0.0025 (0.0716)***	
Loan-to-Deposit Ratio (LDR) †††	-0.0105 (0.0757)***	
Liquidity Ratio of Commercial Banks (LQR)	-0.0214 (0.0898)***	
Commercial Bank's Average Lending Interest Rate (LIR) ††	-0.0386 (0.5265)	0.2268 (0.0003)*
Inflation Rate (INF) ††	-0.0714 (0.0514)***	-0.0835 (0.0001)*
Number of Banks Branches in Rural Areas (NBBR)		0.0087 (0.0418)***
Loans & Advances of Com. Banks as % GDP (LAC)		0.0015 (0.1887)
Foreign Exchange Rate (EXCH)		-0.1973 (0.0168)***
<b>Bounds Test</b>	3.2685***	8.2920*
Critical values (lower & upper bounds)	[2.08, 3.0]	[3.06, 4.15]
Adjusted R <sup>2</sup>	0.7992	0.7116
F-Statistic (Prob.)	54.3642 (0.0007)*	7.1697 (0.0004)*
D-W	2.0085	2.0379
Wald Test	1.1784 (0.2457)	7.3745 (0.0000)
J-B	3.5957 (0.1656)	80.7646 (0.0000)
RESET Test	1.3887 (0.2479)	0.5433 (0.5929)

Lags. Probability values are in brackets. \* P<0.01, \*\* P<0.05 and \*\*\* P<0.1

This implies that credit to the private sector may be abysmally low due to bottlenecks and other upheavals in the country's financial system. It could also result from improper channelling of funds amidst other unwholesome practices within Nigeria's financial system. The result is growth retardation since financial inclusion would be a far cry in such a scenario. Another is the loan-to-deposit ratio



(LDR), whose estimate showed that improvement in LDR reduced real output growth by 0.0105, which was statistically significant. This could mean that LDR is a far cry from what is required to financially include the critical mass of the people for economic growth. However, the inflation (INF) rate estimate followed a priori expectations, and the behaviour was in line. It showed that a percentage rise in the inflation rate will negatively impact economic growth by 0.0714. This outcome speaks to macroeconomic instability occasioned by the unabated growth in the inflation rate.

Table 4.2, column 2 presents the outcome of the interactions between the macroeconomic stability variable (inflation in this case) and the fundamental financial ratios and financial inclusion indicators. Aside from the lag of inflation rate obeying a priori signs, showing that a high inflation rate in the past may reduce or worsen the inflation rate in the present depending on the responses by monetary and fiscal authorities and that it may impact positively or negatively on output growth and macroeconomic stability, other variables did not follow theoretical signs. For instance, the commercial bank lending interest rate (LIR) coefficient was positive and statistically significant, implying that an increase in bank lending rate may result in rising inflation against the theoretical expectation of controlling how economic agents spend in reaction to inflation, thereby creating the possibility for macroeconomic stability.

This may be attributed to sharp practices in the financial system, leading to different rates for different folks. Also, several bank branches in rural areas (NBBR) showed a positive and significant relationship with the inflation rate, implying that the expansion of bank branches may raise the inflation rate by 0.0087, indicating macroeconomic instability by that amount. This would mean that spread in bank branches may not necessarily be tantamount to improved banking services, which may foster stability in financial services and contribute to stabilising the inflation rate. This is because, indirectly, the spread of banks expands the level of liquidity or cash flows within the economy, and this enhances consumption amidst rising prices, fueling inflation (instability). This finding validates the extant argument by Ajakaiye (2012) and Ahmad (2018) on the subject matter. They believed that financial inclusion may impact financial stability (and economic stability) positively or negatively, but that would happen indirectly through a transmission mechanism, *ceteris paribus*.

In general, the adjusted coefficient of determination (adj.  $R^2$ ) was robust for all the estimations. It stood at 80 per cent and 71 per cent respectively, for equations one and two. This indicated that the explanatory power of the models is very strong. It showed that 80 per cent, and 71 per cent variations in the dependent variables - Output growth (GDPR) and Economic stability (INF), respectively – were jointly explained by the independent variables in the models. Also, the associated F- statistics further emphasised the influence of the explanatory variables in the models. They established the overall significance of the models in explaining the phenomena. There was also clear evidence that the models were free from serial correlation as reflected in the Durbin-Watson (D-W) statistics of 2.0085 and 2.0379, respectively. Other diagnostic tests showed that the models were well-behaved. For instance, Jarque-Bera (J-B) test statistics for normality indicate that the residuals of the error term were normally distributed, thus, the null hypothesis of normality in the distribution of the residuals was accepted. Also, the Ramsey RESET test indicated that the functional forms of the two models were free from misspecification and were generally stable.

#### 4.4: ARDL Error Correction Analysis for the Two Models

Having examined the short-run (generalised) estimates as presented in Table 4.2, it became imperative to estimate the error correction models for the two equations earlier examined and the results are presented in Table 4.3. Examining the estimates of the two error correction equations, as reported in columns 1 and 2 of Table 4.3, it was clear that there were long-run interactions among the variables that were adjustable to the short-run and were well-behaved in some cases. For instance, the question of whether financial inclusion leads to economic growth in the long run was answered. As seen in Table 4.3, column 1, aside from the lag of real GDP growth and inflation rate that followed a priori expectation, the rest of the variable reflected mixed outcomes. For instance, credit to the private sector

as a percentage of GDP (FD2) showed that, in the long run, output growth dropped by about 1.28 per cent as CPS/GDP improved.

**Table 4.3. ARDL Error Correction Model Result Estimates for the Two Models**

Variables	(1)	(2)
	Regressand: GDPR	Regressand: INF
Demand Deposit from Rural Areas (DRA)		-0.0024 (0.9752)
Growth in Gross Domestic Product (GDPR) †	0.0106 (0.0117)***	
The ratio of Broad Money to GDP (FD1)	0.0325 (0.0490)***	
The ratio of Credit-to-Private-Sector to GDP (FD2)	-0.0128 (0.0029)**	
Loan-to-Deposit Ratio (LDR)	-0.0013 (0.0078)**	
Liquidity Ratio of Commercial Banks (LQR)	-0.0217(0.0017)**	
Commercial Banks Average Lending Interest Rate (LIR) †	0.0214 (0.0036)**	-0.0167 (0.0011)**
Inflation Rate (INF) †	-0.0171 (0.0012)**	0.0084 (0.0000)*
Number of Banks Branches in Rural Areas (NBBR)		
Loans & Advances of Com. Banks as % GDP (LAC)		
Foreign Exchange Rate (EXCH)		-0.0197 (0.0002)*
Error Correction Term (ECT)	-0.0418 (0.0000)*	-0.0144 (0.0000)*
Adjusted R <sup>2</sup>	0.7186	0.7315
D-W	2.1356	2.0379

†Lags. Probability values are in brackets. \* P<0.01, \*\* P<0.05 and \*\*\* P<0.1

Several factors could be responsible for this outcome; the first could be the question of whether credit accessed by the private sector is always channelled to investments that directly impact the economy. Another issue could be that of a hostile business environment that may suffocate businesses, thereby depriving the economy of its contributions. These hostilities may include multiple taxation, unhealthy competition, and cost of inputs like power supply, amongst other things. Also, the loan-to-deposit ratio (LDR) reflected a negative impact on output growth in the long run. Improvement in LDR would reduce output growth by about 0.13 per cent and be statistically significant at a 5 per cent level. The reason for the undesirable outcome, amongst other things, may be linked to the steady fall in the loan-to-deposit ratio in Nigeria's commercial banks due to difficulties in accessing credit from the commercial banks as a result of continuous hikes in interest rates amidst inflationary pressure. However, commercial banks average lending interest rate (LIR) reflected a positive interaction with output growth, indicating that, in the long run, the economy will grow at 2.14 per cent as interest rate stabilises because investors would access credit and invest in the economy and this would enhance output growth, *ceteris paribus*.

The effect of financial inclusion on macroeconomic stability, in the long run, with macroeconomic stability proxied by inflation, is presented in Table 4.3. columns 2. In assessing the stability of the economy vis-à-vis financial inclusion, demand deposit from rural areas (DRA), lending interest rate (LIR), lag of inflation rate (lagINF) and exchange rate (EXCH) were regressed against inflation rate (INF). All the variables were properly signed in the long run, indicating that all errors in the short run were adjusted and that the economy can stabilise with financial inclusion and a deepened financial system in place, in the long run. For instance, the results showed that, in the long run, improvement in DRA would stabilize the economy by about 0.24 per cent, implying that this improvement would reduce or at least, stabilise the inflation rate in the economy in the long run. This is because the demand deposit forms part of the capital pool that may enhance the issuance of credit to vulnerable businesses in rural areas which will further boost output growth, *ceteris paribus*. Also, the

estimates showed that, in the long run, a reduction in LIR and EXCH will stabilise the economy by 0.17 and 0.90 per cent respectively as it would reduce the inflation rate and encourage demand for credits for investments even in the rural areas.

The error correction estimates for the two equations followed theoretical expectations and were statistically significant at a 1 per cent level. For example, the error correction test (ECT) for economic growth-financial-inclusion interaction stood at 0.418 per cent, indicating that financial inclusion – economic growth relation will need a little above four years to adjust to equilibrium, that is, for its impact to directly influence the improvement in economic growth, *ceteris paribus*. The result showed that, given a very serious commitment to financial inclusion, it may improve output growth significantly within the space of four years, one month and about eight days, while its ability to stabilise the economy may take at least one year, four months and four days, assuming everything takes the desired shape.

## 5.0 Conclusion and Recommendations

Given the present state of economic misnomer in Nigeria where there is dwindling output growth, and a rising rate of inflation, this study attempted an assessment of the impact of financial inclusion on economic growth and macroeconomic stability in Nigeria. The empirical evidence from this study has shown that *ceteris paribus*, financial inclusion has a negative and significant impact on economic growth and macroeconomic stability in the short run. However, in the long run, the findings show that financial inclusion can foster economic growth and macroeconomic stability, though growth in the economy appeared to be slow even in the long run. However, the study argued that the inability of financial inclusion to address economic growth in the short run could largely be attributed to the evidential encumbrances associated with the management of the financial system and some inherent fiscal stress within the economy, such as multiple taxation, unhealthy competition, cost of inputs like power supply, the continuously falling loan-to-deposit ratio of commercial banks due to established difficulties associated with access to credit from Nigerian banks and continuous hike in interest rate amidst inflationary pressures.

Following these findings, the following policy recommendations were made:

1. Since financial inclusion seems not to interact with output growth positively, especially in the short run, efforts at correcting the anomalies in the financial sector and the economy, in general, may strengthen the financial-inclusion-output-growth interaction and put it on a positive path, other things remaining the same. The study, therefore recommends the evolvement of a more robust financial system, devoid of issues such as excessive bottlenecks associated with access to credit, and hostilities in the business environment (like multiple taxation, unhealthy competition, and cost of inputs like power supply) as this would enhance more inclusiveness that will impact growth positively in the long-run.
2. Empirical evidence from the study showed that financial inclusion greatly enhances economic (price) stability in the long run. Thus, it is imperative to further deepen financial inclusiveness to ensure a holistic and sustainable process, as this will sustain the gains in terms of macroeconomic stability.

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