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Research Article

Financial Inclusion, Poverty Reduction, and Economic Growth in Nigeria: An Empirical Study Using SVAR Approach (1980-2020)

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Abstract: This study examines the empirical analysis of financial inclusion, poverty reduction and economic growth in Nigeria from 1981 to 2020 using the Structural Vector Auto-Regressive (SVAR) model for analysis, with Gross Domestic Product (GDP) as dependent variable and Branches of Commercial Banks (CBBA), Automated Teller Machine (ATMAD), Mobile Phone-Based Transactions and Broad Money Supply (MS) as explanatory variables. The findings of the study reveal that the unit root test shows that Real Gross Domestic Product (RGDP), Commercial Bank Branches (CBB), Money Supply (MS) and Poverty Rate (PR) are stationary at first difference. The results also reveal that in Nigeria, availability and access to money have a positive shock impact on RGDP, and CBB also has a favourable shock effect on RGDP in Nigeria. However, the PR has a negative impact on the RGDP. Therefore, the study recommends that the government should increase its efforts to promote financial inclusion and the Central Bank of Nigeria (CBN) should make commercial banks increase not only their branches but also increase the number of Automated Teller Machines (ATMs).

Keywords: financial inclusion; poverty reduction; economic growth; structural VAR model

1. Introduction

In 2015, the leaders of 193 countries pledged to reduce inequality through Sustainable Development Goals (SDGs) under Goal number 10. Without curbing inequality, meeting SDG goal 1, which is to eliminate poverty, will be impossible. Policymakers and experts all across the world now place more emphasis on financial inclusion. This is a result of its efficient role as a driver of the economy, and also, the promise it holds as a tool for economic development, particularly in the area of wealth creation, employment generation, poverty reduction, improving welfare and general standard of living (Charles-Anyaogu, 2020). Therefore, increasing the poor and marginalized groups' access to financial services is now a global concern (Igwe et al., 2021). This is because it is anticipated that everyone will benefit from economic progress. As such, governments have put in several programs and schemes which are expected to reach a large proportion of the populace. Financial inclusion is a policy that has been recognized to target most of the population (Zhang et al., 2009). A comprehensive financial system is necessary to make resource allocation easier and lower the cost of capital (Migap et al., 2015). Financial inclusion facilitates and accelerates economic growth, job creation, and development (Hassan et al., 2019).

Additionally, having simple access to financial services can enhance daily transactions and decrease the use of informal credits, which are frequently abusive (Akhil, 2016). Financial inclusion has favourable effects on people's income levels and, consequently, on the economy as a whole (Wakdok, 2018). Enhancing financial inclusion modernizes agriculture, promotes innovation, surges entrepreneurship and increases growth (Kelkar, 2010). For low-income groups, access to credit creates entrepreneurship as well as investment opportunities, output increases and hence growth increases (Islam & Mamun, 2011).

Fewer economic activities would be able to be supported in an underdeveloped financial system, where funds are less accessible and that too at greater costs, hence restricting the resulting economic growth. The industrialized financial systems have trouble providing low-income groups with the means to pay for their consumption and other necessities. Poor

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people are generally excluded by formal financial institutions due to a lack of required securities needed for the purpose (World Bank, 2008). Therefore, they have to resort to high-cost informal sources such as moneylenders, thereby leading to the benefits of growth getting concentrated in the hands of those already served by the formal financial system (Reserve Bank of India, 2008).

It is believed that if the poor have access to banking services and benefit from credit supply is financially included. It is further confirmed that the process of financial service is the anti-poverty strategy. Furthermore, poverty reduction means economic growth and an increase in well-being (Magaji & Musa, 2015).

Financial inclusion is attained in the Nigerian context when people have simple access to a wide range of formal financial services that cater to their needs and are offered at reasonable prices (CBN, 2012). It appears that 91 million people in a nation of 140 million are served by informal financial institutions. 82.1 million of these were women and 85.8 million were men. Nigeria's population is anticipated to reach 221.4 million by 2020 using a population growth rate of 3.2%, which is the same rate as the Commission used in 1991 and 2006, respectively. What hope is there for financial inclusion with a potential reduction in poverty using these informal financial service providers, taking into account the amount of savings they can mobilize and the value of loans/credits that they can disburse or give, if the only sources of financial services available to the rural people in Nigeria are informal sources such as money lenders, self-help groups, and rotational savings associations that have been with the poor for decades. For instance, to enhance financial inclusion in Nigeria, banks maintain low minimum account balances to encourage the underprivileged to open accounts even when the bank does not directly profit from such accounts (Magaji et al., 2022).

To this end the research questions that arise are:

What is the relationship between financial inclusion, poverty reduction and economic growth in Nigeria?

What is the impact of financial inclusion on poverty reduction and economic growth in Nigeria?

Therefore, the objective of this study is to check the empirical relationship between financial inclusion, poverty reduction and economic growth in Nigeria from 1981 to 2020, using the SVAR approach.

2. Literature Review

2.1. Conceptual Review

2.1.1. Financial Inclusion

According to Odi and Ogonna (2014), financial inclusion refers to ongoing, significant, cost-effective, and pertinent financial services for the underprivileged. More so, financial inclusion is the condition in which those who can utilize financial services have access to high-quality financial services that are provided at reasonable costs, with appropriate care taken to maintain the client's dignity. It is also a state where everyone has access to the financial services and products they want to manage their money well. Financial aptitude and financial literacy are required to attain it (Lindsay & Gillespie, 2009). Financial inclusion is a condition in which everyone has access to a variety of high-quality financial services that are provided to clients who have the financial means to pay for them in a stable, competitive market, with ease, dignity, and consumer protection (Abbas & Atanda, 2019). From the foregoing, we view financial inclusion as a situation where everyone is not marginalized in financial services.

2.2.2. Poverty

Obadan (1997) claims that there are many different aspects of poverty, such as a lack of purchasing power, risk exposure, malnutrition, a high mortality rate, a short life expectancy, a lack of access to social and economic services, etc. Hunger, malnutrition, poor health, limited or no access to education and other basic services, an increase in morbidity and mortality from illness, homelessness, an insufficient, unsafe, and degraded environment, as well as social exclusion and discrimination, are just a few ways that poverty manifests itself (Shaba et al., 2018). A lack of economic growth, ongoing structural imbalances, sluggish Gross Domestic Product (GDP) growth, high population growth rates, underdevelopment of industries and factors of production, degradation of natural resources, obstacles to rural development as the engine of the economy, and limited access for the vast majority of the population to essential social services are believed to be the main causes of poverty (Magaji

& Musa, 2015). Poverty is thought to be a constraint on people's ability to purchase goods and their standard of living (Aluko & Magaji, 2020). Poverty is caused by several interrelated factors, such as a lack of resources, a need, a pattern of deprivation, a lack of entitlements and fundamental security, dependency, exclusion, social class, economic status, and intolerable hardship (Magaji et al., 2022). Magaji and Adamu (2010) defined poverty as a noteworthy lack of well-being, including the absence of the required abilities, assets, opportunities, and security to make a meaningful contribution to society.

2.2.3. Economic Growth

Economic growth is the rise in the market value of the products an economy produces over time African Economic Outlook, (2016). It is typically expressed as the per cent rate of growth in real gross domestic product, or real GDP. However, the growth ratio of real GDP to population, also known as per capita income, is of greater significance. Intensive growth is the term used to describe a rise in per capita income. Extensive growth is defined as GDP growth that is solely the result of population or geographic expansion (Gordon, 1999). Economic growth refers to the increase of a nation's potential GDP or output, and a significant body of research has been devoted to illuminating how this goal can be attained (Fadare, 2010).

2.2. Theoretical Framework

To underpin this work, Finance Growth Theory is used below:

2.2.1. Finance Growth Theory

The finance-growth theory is used as the theoretical foundation for this study since it holds that financial development, through the "supply-leading" or "demand-following" effect, generates a dynamic, productive environment for growth. This theory also acknowledges that a significant cause of ongoing economic inequality and slow growth is a lack of access to finance. Since income inequality and poverty must be reduced to accelerate growth, access to a safe, simple, and affordable source of finance is recognized as a necessary condition. This promotes equality, enables those who are economically and socially excluded to integrate better into the economy, and helps them actively contribute to development while protecting them from economic shocks (Serrao et al., 2012).

The extremely low level of financial literacy in Nigeria, especially among rural residents, is one of the main obstacles to financial inclusion, making it difficult for business owners to provide banking and other financial services (Magaji et al., 2019). Additionally, the country still has a low level of information and telecommunications literacy, which makes it challenging to acquire financial services (Magaji et al., 2023). The degree of comprehension of financial transactions and the capacity of the illiterate to take advantage of the opportunities in financial services are occasionally hampered by the inadequacy and inappropriateness of awareness efforts (Aina & Oluyombo, 2014). The disparity between the target population's language and the language of instruction is crucial to awareness and lowers communication effectiveness (Magaji & Aliyu, 2007). Financial services cannot be used efficiently by a population that lacks knowledge (Migap et al., 2015).

2.3. Empirical Review

The relationship between financial inclusion, economic growth, and poverty reduction has been the subject of empirical studies. As an illustration, (Afolabi, 2020). Between 1981 and 2017 in Nigeria, the impact of financial inclusion on inclusive growth is examined. The number of bank branches, GDP per person, private sector credit-to-GDP ratio, money supply-to-GDP ratio, and rural loans were among the many factors considered in the study. The Auto-Regressive Distributed Lag (ARDL) model was additionally applied. According to the study, financial inclusion, in the form of rural loans, bank branch count, and liquidity level, has a positive and significant impact on inclusive growth in both the short and long terms, but interest rates serve as a barrier to growth that is inclusive. The Central Bank of Nigeria (CBN) is advised to put financial policies into effect through market-based interest rates, which will surely have an impact on the money supply and, as a result, increase the degree of financial inclusion. The SVAR method, however, can have different outcomes. The years up to 2020 were not included in this study.

Omar & Inaba, however, attempt to clarify whether financial inclusion lessens poverty and income disparity in developing nations in 2020. Their analysis makes use of annual, imbalanced panel data from 2004 to 2016. By combining a variety of financial sector outreach measures, they create a novel index of financial inclusion. According to the study's findings,

the level of financial inclusion in developing nations is highly influenced by factors such as per capita income, the percentage of internet users, the age dependency ratio, inflation, and income inequality. The degree to which financial inclusion has an impact on reducing poverty is not, however, demonstrated by this study. Despite the focus on poverty reduction in this study, the year 2020 was not included in the time frame.

However, Dahiya and Kumar (2020) investigated the relationship between financial inclusion and economic growth in India and discovered that financial inclusion is essential for the long-term growth and development of a country where all societal groups have access to financial services at a reasonable price. Utilization, penetration, and accessibility were the three financial inclusion dimensions used in the study. From 2005 to 2017, they discovered a connection between financial inclusion and economic growth in India. The Bayesian Vector Auto Regression model is used in the study to explain how financial inclusion and economic growth are related. The results indicate that economic growth and financial inclusion in India have a significant relationship. This study was conducted about India and employs a distinct technique.

The rapid expansion of digital financial inclusion in China has significantly increased the accessibility and affordability of financial services and contributed to higher economic growth in China, according to Ahmad and Khan's investigation into the relationship between digital financial inclusion and economic growth in China in 2021. Based on coverage depth, level of digitalization, and usage breadth, their analysis employs the NW Proxy of digital financial inclusion. The results demonstrate that human capital and digital financial inclusion have a major impact on China's provisional economic growth, and they call for increased investment in these areas. The study's time frame was from 2010 to 2020, however, China, not Nigeria, was the focus of the investigation.

Due to the inadequacies in the previous research, it is necessary to do a study that includes Nigeria and the variables of financial inclusion, poverty, and economic growth. This study will use SVAR modelling to determine the effect of financial inclusion on poverty reduction in Nigeria.

3. Materials and Methods

This study examines the Empirical Analysis of Financial Inclusion, Poverty Reduction and Economic Growth in Nigeria from 1981 to 2020 using SVAR methodology. To specify the model, the study adopts the model of Musa, Magaji, and Salisu (2023) in their study Relationship between Financial Inclusion and Economic Growth in Nigeria:

GDP = F (CBBA, ATMAD, MBPT, FDI) (3.1)

Where;

GDP = Gross Domestic Product

CBBA = Branches of Commercial Banks

ATMAD = Automated Teller Machine

MBPT = Mobile Phone-Based Transactions

MS = Broad Money Supply

By dropping some variables in their model and adding new variables, the model of this study is as follows:

$$RGDP = F(MS, CBB, PR) \quad (3.2)$$

Where:

RGDP = Real Gross Domestic Product

MS = Broad Money Supply

CBB = Commercial Bank branches

PR = Poverty rate

Table 1 shows measurement, sources and description of variables in details.

Table 1. Measurement, sources and description of variables.

Variables	Brief description of variable	Sources of data	Period	*A priori* expectation
RGDP	Real Gross Domestic Product. Measured at local currency unit (LCU)	World Development Indicators	1981-2020	+
CBB	Number of commercial Bank Branches	CBN Statistical Bulletin	1981-2020	+
PR	The poverty rate is measured by international measuring standards like the $1 and $2 per day	World Development Indicators	1981-2020	-
MS	Financial Deepening Index expressed as Broad Money Supply to percentage to GDP	World Development Indicators	1981-2020	+

3.1. Structural Vector Auto-Regressive (SVAR) Model

To fulfil the goals of the research endeavour, the study used SVAR to quantify the effects of financial inclusion and poverty reduction on economic growth in Nigeria. The purpose of SVAR analysis is to ascertain the relationships between the variables rather than to ascertain the parameters (Enders, 2015). To meet its objectives, the study employed structural VAR to assess how financial inclusion and poverty reduction affected Nigeria's economic growth. As a result, it treats every variable as having endogenous potential. Using VAR, an econometrics tool, you can visualize how dynamically stationary variables interact with one another. VAR is a model that solely uses endogenous variables and permits the variables to depend on sources other than their lags (Enders, 2015).

$$Y_t = b_{10} - b_{12}Z_t + \gamma_{11}y_{t-1}\gamma_{12}Z_{t-1}\varepsilon_{yt} \quad (3.3)$$

$$Z_t = b_{20} - b_{21}\,y_t + \gamma_{21}y_{t-1} + \gamma_{22}z_{t-1} + \varepsilon_{Zt} \quad (3.4)$$

Yt and zt are dependent variables from equations (3.3) and (3.4), and b12 and b21 quantify the simultaneous effects of zt on yt and yt on zt, respectively. The structural errors are represented by the coefficients yt and zt, while εyt and εzt represent the lagged relationship between the variables.

Where the C1 is the impulse responses of y_{t-1} to a unit shock in ε_t.

$$MS_t = \alpha_{10} - \alpha_{20}\,CBB_t - \alpha_{30}\,PR_t - \alpha_{40}\,RGDP_t + \sum_{t-1}^{p}\beta_{10}^{t}\,MS_{t-1} + \beta_{10}^{t}\,CBB_{t-1} + \beta_{12}^{t}\,PR_{t-1} + \beta_{133}^{t}\,RGDP + \mu_t^{MS} \quad (3.5)$$

$$CBB_t = \alpha_{20} - \alpha_{30}\,MS_t - \alpha_{40}\,PR_t - \alpha_{50}\,RGDP_t + \sum_{t-1}^{p}\beta_{20}^{t}\,CBB_{t-1} + \beta_{30}^{t}\,MS_{t-1} + \beta_{40}^{t}\,PR_{t-1} + \beta_{50}^{t}\,RGDP_{t-1}\,\mu_t^{CB} \quad (3.6)$$

$$PR_t = \alpha_{30} - \alpha_{40}\,MS_t - \alpha_{40}\,CBB_t - \alpha_{50}\,RGDP_t + \sum_{t-1}^{p}\beta_{30}^{t}\,PR_{t-1} + \beta_{40}^{t}\,MS_{t-1} + \beta_{50}^{t}\,CBB_{t-1} + + \beta_{50}^{t}\,RGDP_{t-1}\,\mu_t^{PR} \quad (3.7)$$

$$RGDP_t = \alpha_{40} - \alpha_{50}\,MS_t - \alpha_{60}\,CBB_t - \alpha_{70}\,PR_t + \sum_{t-1}^{p}\beta_{40}^{t}RGDP_{t-1} + \beta_{50}^{t}\,MS_{t-1} + \beta_{60}^{t}\,CBB_{t-1} + \beta_{70}^{t}\,PR_{t-1}\;\mu_t^{GDP} \quad (3.8)$$

3.2. Identification of Restrictions

Identification of constraints is a crucial step in determining if impulse response functions provide accurate structural interpretations when examining the dynamic consequences of a VAR model. This is accomplished by placing the proper contemporaneous constraints on the model's parameters, which are often driven by economic theory and a priori expectations. This enables the structural shocks from the reduced form VAR model to be recovered.

The structural shocks: $e^{FD1}\,e^{CBB}\,e^{PR}e^{RGDP}$ are orthogonal. According to this supposition, the variance-covariance matrix is calculated utilizing orthogonality constraints and error normalization. Financial deepening is affected by the change in commercial bank branches and poverty rate but is not affected by the change in real gross domestic product. Therefore, A_{14}= 0. The commercial bank branch is assumed to be affected by changes in the poverty rate but is not affected by the change in financial deepening and real gross domestic

product therefore A_2 and A_{24}= 0. The poverty rate is affected by the changes in financial deepening and commercial bank branches. Therefore, A_{34}= 0. Real gross domestic products are affected by the changes in financial deepening, commercial bank branches and poverty rate.

The rationale behind the identification scheme is to develop SVAR models for financial inclusion, and poverty rate on economic growth in Nigeria that embody sensible economic interpretations and generate from impulse responses and variance decomposition. However, the study can impose 6 restrictions on the matrix for the SVAR model.

$$\begin{bmatrix} FD1 \\ CBB \\ PR \\ RGDP \end{bmatrix} = \begin{bmatrix} C_1 \\ C_2 \\ C_3 \\ C_4 \end{bmatrix} \begin{bmatrix} 1 & A_{12} & A_{13} & A_{14} \\ A_{21} & 1 & A_{23} & A_{24} \\ A_{31} & A_{32} & 1 & A_{34} \\ A_{41} & A_{42} & A_{43} & 1 \end{bmatrix} \begin{bmatrix} FD1_{t-1} \\ CBB_{t-1} \\ PR_{t-1} \\ RGDP_{t-1} \end{bmatrix} + \begin{bmatrix} 1 & \alpha_{12} & \alpha_{13} & 0 \\ 0 & 1 & \alpha_{23} & 0 \\ \alpha_{31} & \alpha_{32} & 1 & 0 \\ \alpha_{41} & \alpha_{42} & \alpha_{43} & 1 \end{bmatrix} \begin{bmatrix} U_t^{FD1} \\ U_t^{CBB} \\ U_t^{PR} \\ U_t^{RGDP} \end{bmatrix}$$

Where

$$A = \begin{bmatrix} 1 & A_{12} & A_{13} & A_{14} \\ A_{21} & 1 & A_{23} & A_{24} \\ A_{31} & A_{32} & 1 & A_{34} \\ A_{41} & A_{42} & A_{43} & 1 \end{bmatrix}, C = \begin{bmatrix} C_1 \\ C_2 \\ C_3 \\ C_4 \end{bmatrix}, Z = \begin{bmatrix} FD1 \\ CBB \\ PR \\ RGDP \end{bmatrix}, Z_{t-1} \begin{bmatrix} FD1_{t-1} \\ CBB_{t-1} \\ PR_{t-1} \\ RGDP_{t-1} \end{bmatrix}, U_t = \begin{bmatrix} \begin{bmatrix} U_t^{FD1} \\ U_t^{CBB} \\ U_t^{PR} \\ U_t^{RGDP} \end{bmatrix} \end{bmatrix}$$

$$and\ a = \begin{bmatrix} a_{11} & a_{12} & a_{13} & a_{14} \\ a_{21} & a_{22} & a_{23} & a_{24} \\ a_{31} & a_{32} & a_{33} & a_{34} \\ a_{41} & a_{42} & a_{43} & a_{44} \end{bmatrix} \ such\ that\ U_t \sim iid\ (0, \alpha^2)$$

A is a 4 by 4 matrix of the parameters to be estimated and identified with 1 as a diagonal element. C is a 4 by 1 vector of constants. A is a 4 by 1 matrix of the coefficients of lagged variables. And is a 4 by 1 vector of the structural/ orthogonal zed errors, which are assumed to be serially uncorrelated with a mean of zero and a constant variance.

4. Results and Discussion

4.1. Descriptive Statistics

The descriptive statistics applied in the study are shown in Table 2 and it illustrates that the standard deviations of the variables utilized are not considerably different from their means, except for the poverty rate (5.554603). RGDP, the money supply, and the poverty rate are all positively skewed and less than one, while the commercial bank branch and the money supply are both negatively skewed and less than one. This indicates that all the variables used are regularly distributed. Because all of the variables included have values less than 3, the Kurtosis in the table demonstrates that they are all regularly distributed. All of the variables employed were determined to be regularly distributed by the Jarque-Bera test for normality since their p-values were more than 5%, which is the threshold at which the null hypothesis must be rejected.

Table 2. Descriptive statistics.

Statistics	LRGDP	LCBB	LMS	PR
Mean	5.622215	3.331655	1.187891	23.93500
Median	5.535047	3.237292	1.129151	23.60000
Maximum	5.999595	3.764101	1.437414	32.90000
Minimum	5.263785	2.793790	0.957288	12.10000
Std. Dev.	0.255950	0.311647	0.149989	5.554603
Skewness	0.147048	-0.077643	0.370895	-0.432554
Kurtosis	1.468914	1.600352	1.592157	2.935100
Jarque-Bera	4.051195	3.305212	4.220455	1.254372
Probability	0.131915	0.191550	0.121210	0.534093
Sum	224.8886	133.2662	47.51564	957.4000
Sum Sq. Dev.	2.554904	3.787825	0.877373	1203.291

Observations	40	40	40	40

Source: Researcher computation using E-views 10, 2023.

4.2. Unit Root Test

The study evaluated unit root tests of Phillips Perron and Augment Dickey-Fuller to determine the variables' order of integration. Table 3 presents the result of the ADF and PP unit root test. It clearly shows that RGDP, CBB, MS and PR are stationary at the first difference that is, are (I) processes in both ADF and PP tests.

Table 3. Augment Dickey-Fuller (ADF) and Phillips Perron (PP) unit root test.

	Test at level		**Test at first difference**		**Order of Integration**
Variables	**ADF test**	**PP test**	**ADF test**	**PP test**	
Long Run GDP	-0.761801	-0.434123	-4.036978	-3.975280	I(1)
Long Run CBB	-1.345945	-1.354757	-6.613456	-6.615706	I(1)
MS	-1.558242	-0.816385	-4.530998	-4.875958	I(1)
PR	-0.762689	-0.153510	-3.073519*	-3.058159*	I(1)

Source: Researcher computation using E-views 10, 2023.

*Asterisk:** indicates a stationary 5% level of significance.

4.3. SVAR Stability Test

SVAR stability test was used to check whether all of the Eigenvalues are less than one or whether all of the moduli fit inside the unit circle. As seen in Figure 1, the unit circle encompasses all of the moduli. As a result, it may be inferred that the SVAR model is stable and that the shocks' effects are calculable and constrained. SVAR thus satisfies its criteria.

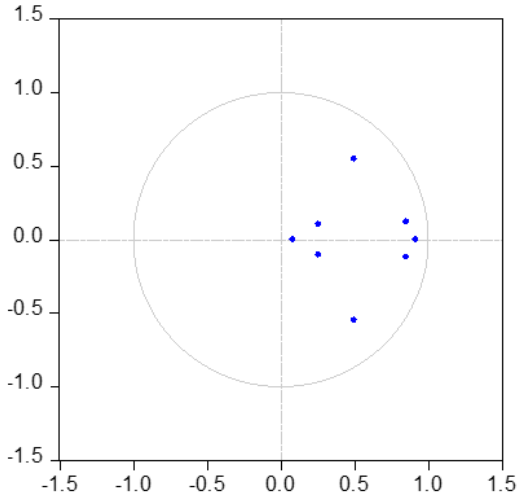

Figure 1. SVAR stability test.

Source: Researcher computation using E-views 10, 2023.

From Figure 1, if all of a VAR model's moduli, or characteristic polynomials, are less than unity and fall within a unit circle, the model is considered to be stable.

4.4. Impulse Response Functions (IRF)

The unconstrained VAR technique's Impulse Response Functions are a helpful tool for looking at how the variables in this study interact with one another (IRFs). They show how certain variables react to systemic disturbances brought on by other variables. IFRs provide a visual depiction of the behaviour of variables in response to shocks when they are presented visually. The outcomes are displayed in Figure 2 below.

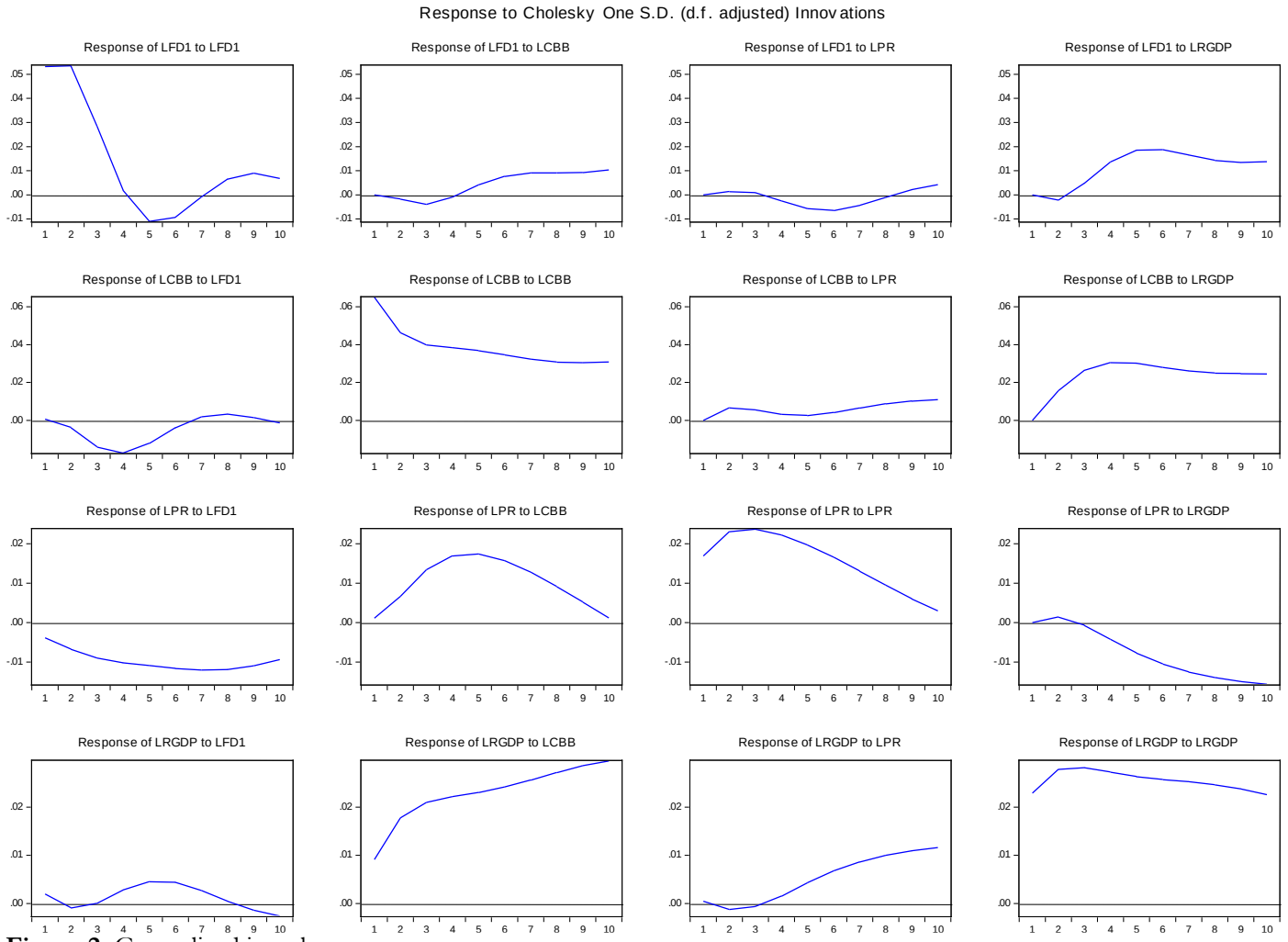

Figure 2. Generalized impulse response.
Source: Researcher computation using E-views 10, 2023.

Utilizing orthogonalized impulse response functions, dynamic changes of each to one standard error shock to each other variable are investigated, notably to the real gross domestic product (GDP) (IFRs). demonstrated in Figure 4.2. There are four shocks namely; financial deepening to proxied to money supply (shock 1), commercial bank branch (shock 2), poverty rate (shock 3) and real gross domestic product shock (shock 4). Each shock occurs over a 10-period time.

The one-unit response of the money supply shock to itself was positive in periods one through four, negative in periods five through seven, and positive in period eight, according to the impulse response functions (IFRs) in Figure 2. Money supply reacts negatively to commercial bank branches in periods one through four before quickly turning positive in periods five through ten. The shock effect of the money supply on the poverty rate was positive from 1 to 3 and negative from 4 to 8 before dying out. All other things being equal, the one-unit standard deviation shock of money supply to real gross domestic product, which is negative in periods 1 to 2 and swiftly transforms to positive up to period 10, indicates that RGDP is rising with the expansion in money supply in Nigeria.

In periods 1 through 6, commercial bank branches respond to increases in the money supply adversely, positively in periods 7 through 9, and negatively over time. The commercial bank branch has responded well to the poverty rate during the entire horizon period. The commercial bank branch has a positive impact on real gross domestic product for the whole horizon period, demonstrating this branch's beneficial influence on RGDP.

The relation of the poverty rate to the money supply is consistently negative. The shock that the poverty rate has on the commercial bank branch is positive across the entire horizon. A rise in the poverty rate will result in a fall in real gross domestic product, according to one-unit standard deviation shock of the poverty rate to real gross domestic product, which is positive in periods 1 and 2 and quickly turns negative up to period 10.

Real GDP responds to the money supply adversely in periods two to three, positively in periods four to eight, and then negatively thereafter. Throughout the whole horizon period, there has been positive real GDP innovation in commercial bank branches. RGDP reacts negatively to the poverty rate in periods 1 through 3 and then positively after that.

4.5. Diagnostic Test

The diagnostic test is carried out to examine the consistency and dependability of the model's estimated coefficients. Other tests include Serial Correlation, Heteroscedasticity and Normality, and SVAR Stability.

Table 4. Post-estimation test.

Residual serial correlation LM tests		
Lags	LM-Stat	Prob
1	14.43499	0.5700
2	9.782306	0.8792
3	7.982799	0.9500
Residual heteroscedasticity tests		
Chi-square	Df	
177.6126	160	0.1617
Jarque-Bera	Df	
10.13836	8	0.2554

Source: Researcher computation using E-views 10, 2023.

As can be seen from Table 4.3, the model does not pass the tests for serial correlation, heteroskedasticity, and normality because their p-values are higher than 5%.

5. Conclusions

The study looks at how Nigeria's economic growth has changed from 1981 to 2020 as a result of financial inclusion and efforts to reduce poverty. The results of the impulse response functions demonstrated that the money supply had a direct impact on Nigeria's actual gross domestic product. The real gross domestic product of Nigeria benefits from a commercial bank branch. RGDP in Nigeria is negatively impacted by the poverty rate. Financial inclusion not only fosters economic growth, as recommended in the literature but also helps to implement stability policy (monetary policy) in Nigeria. The government should make an effort to encourage financial inclusion. Appropriate and severe actions must be taken if financial inclusion in Nigeria is to be increased. There will be fewer people living in poverty as a result and more opportunities for lucrative jobs.

Based on the finding of the study, financial inclusion plays significant role in poverty in growth of the Nigerian economic by making it possible for people to have access to money so as to finance their small and medium scale business. Also, it is found that there's great relationship between financial inclusion, poverty reduction and economic growth in Nigerian during the period of the study.

The study faces some limitations such as lack of money to get people views with regard to financial inclusion, as such, the research resolved to use primary data.

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