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EVALUATING THE LINK BETWEEN COMMERCIAL BANK FINANCING AND AGRICULTURAL PRODUCTIVITY IN NIGERIA

Dr. DAHIRU ALHAJI BALA BIRNIN TSABA
Federal Polytechnic, Kaura Namoda
08066623845

SANI ABUBAKAR GARBA
Abdu Gusau Polytechnic, Talata Mafara
08060729573

ANAS DAYYABU
Abdu Gusau Polytechnic, Talata Mafara
08136309462

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ABSTRACT

This paper investigates the impact of Commercial Banks' Loans on agricultural output in Nigeria for the period of 1981 to 2022. The properties of the data were first checked using both descriptive statistic and unit root tests to avoid spurious regression. Based on that, the research has used the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) unit root tests with trend and intercept. The results of unit root tests found that all the variables are integrated of order one that is I(1) processes. This justified to conducted cointegration test and the results found absent of cointegration among the variables which paved way to used Vector Autoregressive (VAR) model in order to achieve the objectives of the study. Therefore, based on the results obtained, the study revealed that, Commercial Banks' Loans to Agriculture has significant impact on agricultural output, while FDI does not have much significant effect on agricultural output in Nigeria. More so, the study showed that. exchange rate also has significant impact on agricultural output in Nigeria From the findings, the study recommends that, government should come up with agricultural policy that allow farmers access to loans especially with low interest rate if not free interest on the loan to the farmers as it is indicates from the findings it has significant impact on agricultural output in Nigeria. More so, the government through the Central Bank of Nigeria and other regulatory bodies should try as much as possible to minimize the exchange rate volatility or fluctuations and ensure availability of foreign currencies in the country which will in turn will be use to supply all necessary agricultural equipments from abroad. Exchange rate stability will help stabilize the Nigerian currency against other currencies of the world which will in turn create value for the county's currency

Keywords: agricultural output, Commercial Banks' Loans, Vector Autoregressive (VAR) model

1.0 INTRODUCTION

It is projected that by 2050, there will be 9.7 billion people on the planet. Approximately 821 million people (2017: 804 million) did not have enough food on a regular basis in 2018,

according to the United Nations (UN, 2020). Since 2014, there have been more folks who are undernourished. West Africa was home to 15.1% of the undernourished people on the planet in 2017. According to the 2018 International Food Policy Research Institute (IFPRI) global hunger index, Nigeria ranked 103rd out of 119 countries, suggesting a significant level of hunger in the country. Nigeria's population is predicted to increase from its current 196 million people to at least 202 million between 2018 and 2050. The country is expected to surpass the United States, which is now the third most populated country in the world, by 2050.

In recent years, food security and nutrition have become the most important global political issues, affecting every nation. Even though there is enough food available for everyone in the globe, over a billion people still lack access to nourishing food. Both undernutrition and the increased prevalence of overweight and obesity remain serious public health concerns in many countries across the world. There are still 820 million hungry people in the world, with the worst conditions occurring in Africa. There have been slight but steady increases in the prevalence of undernourishment since 2015 in almost every sub-region of Africa (FAO, 2019).

According to the FAO (2018), 84% of Nigerians work in the agriculture sector, mostly in family-owned farms and private small enterprises that are poorly integrated into value chains. The Nigerian agriculture sector offers a strong opportunity to employ the excess youth labor, but productivity is negatively impacted by a number of problems that plague it. To improve its appeal, the agriculture sector needs to be competitive.

Credit finance for agriculture will lead to higher agricultural output through access to essential inputs including fertilizer, land, improved seedlings, machinery, storage facilities to minimize post-harvest waste, and irrigation infrastructure for dry season farming. More precisely, credit availability can encourage new entrants and remove barriers to entry, boosting agricultural productivity overall. However, because of the volatility of commodity prices, unforeseen disease outbreaks, and the effects of climate change, such as drought and flood, the agricultural sector remains extremely risky and less desirable to banks for a lending facility. Furthermore, the bulk of Nigeria's rural people and smallholder farmers, who run the agricultural sector in the nation, do not have sufficient collateral to obtain financing from reputable financial institutions, which restricts the potential performance of their farms. The Agricultural Credit Guarantee Scheme Fund was established by the federal government to solve this issue and ensure food security.

Commercial banks were instructed to lend to the agriculture sector after the establishment of the (ACGSF) in 1977 as a means of encouraging formal financial institutions to lend to the agricultural sector more and longer (Magaji & Bature, 2004; Eyo, Nwaogu & Agenson, 2020). Rural and small holder famers in Nigeria have inadequate capital base and weak access to finance (Magaji & Abubakar, 2011; Magaji, Musa & Yusuf, 2022). As a result of these farmers' inability to obtain adequate funding, the problems with low production efficiency have gotten worse. The main issues that cause other production parameters to negatively impact farmers' output and efficiency are low savings and an inadequate availability of credit (Magaji & Yahaya, 2012).

Governments and stakeholders at all levels have proposed a number of strategies to increase food production; some of these strategies center on agricultural diversity, while others emphasize increasing farmers' access to agricultural finance (credit) in order to increase

productivity (Osabohien, Adeleye, & De Alwis, 2020). These tactics are crucial since the agricultural sector employs over 50% of the labor force and makes a major contribution to the GDP of developing nations, particularly those in Africa (Osabohien et al., 2020). Over time, however, administrations have failed to diversify the economy and have placed too much emphasis on the capital-intensive oil sector, neglecting agriculture (Usman, Adeniji & Odugbemi, 2018). Similarly, in the agricultural sector in Africa, particularly in Nigeria, agriculture accounts for a significant share of activities and roughly 80% of the industry size, with the remaining 20% coming from forestry, fishing, and livestock (Osabohien et al., 2020). Agriculture plays a vital role in the economy, although recently its share of GDP has declined due to low yields caused by farmers' restricted or nonexistent access to financing

The study aims to analyze the influence of commercial bank loans on agricultural output in Nigeria. It is crucial to think about how credit or finance might help agriculture and other industries.

2.0 LITERATURE REVIEW

2.1 Conceptual literature

2.1.1 Concept of commercial Loans [SU1.1]

According to Kenton (2020), a commercial loan is a debt-based funding arrangement between a business and a financial institution such as a bank. It is typically used to fund major capital expenditures and/or cover operational costs that the company may otherwise be unable to afford. Expensive upfront costs and regulatory hurdles often prevent small businesses from having direct access to bond and equity markets for financing. This means that, not unlike individual consumers, smaller businesses must rely on other lending products, such as lines of credit, unsecured loans or term loans. Commercial loans are loans granted by financial institution to a variety of business entities, usually to assist with short-term funding needs for operational costs or for the purchase of equipment to facilitate the operating process. In some instances, the loan may be extended to help the business meet more basic operational needs, such as funding for payroll or to purchase supplies used in the production and manufacturing process

2.1.2 Concept of Agricultural Output

Agricultural output simply refers to the all kinds of products produce through agriculture which comprises output sold (including trade between agricultural holdings); changes in stocks; output for own final consumption; output produced for further processing by agricultural producers; and intra-unit consumption of livestock feed products. Its means the introduction of genes to plants and/or the genetic manipulation of plants using tools to impart desirable commercial characteristics, that otherwise would not have been there, to the plant and/or to any part thereof, such that the plant, or plant part, when grown and/or harvested has such desirable commercial characteristics without further processing, or desirable products can be obtained from the plant or plant part by processing, purification or otherwise, including any products which are made by modifying any material obtained from such plant or plant part; provided that, in any event.

2.2 Theoretical literature

The basis of this research is anchor to the credit scoring system theory. According to the theory, a credit score is primarily derived from data found in credit reports. Credit scores are used by lenders, including banks, to determine how risky it is to lend money to customers and to lower losses from bad debt. According to Ashofteh& Bravo (2019), in developed markets, lenders typically use historical loan application and loan performance data, which is routinely gathered from a limited number of sources based on established banking and credit relationships, to assess credit risk. These models are then used to develop credit-scoring models that assess repayment ability and willingness as well as fraud detection. These tactics are less effective in developing nations and among low-income, unbanked communities since they typically lack access to institutional support and/or don't generate stable employment income.To get around these limitations and improve credit risk assessment, banks and loan providers are increasingly using non-traditional data sets (from retailers, utilities, mobile operators, and direct-sales companies) to enhance their credit bureaus and credit rating services. Credit scoring modellers face substantial challenges when dealing with non-traditional data, which often requires gathering from many sources and has a volume several times bigger than traditional data. Lenders hope to gain greater insights and motivation to grow the loan industry while upholding a robust credit management framework by implementing this technique. By utilizing these new data sources more regularly, they intend to offer more lending to the general public while also better evaluating loan requests, which will ultimately result in an increase in the loan ratio and a reduction in decision-making time (Usman, 2018). The economy will benefit from people having more monthly disposable income for consumption, but financial institutions may potentially face risks as a result.

2.3 Empirical Literature Review

The relationship between agricultural output and commercial banks' loan to agriculture has been arguably discussed by many researchers but they are yet to reach final conclusion as some researchers found a positive while others found negative impact on agriculture. for example Okpala et al (2022) investigated the effect of agricultural credit guarantee scheme fund and government total expenditure on agriculture on agricultural sector's contribution to real gross domestic product in Nigeria from 1990 to 2020. Their finding revealed that agricultural credit guarantee scheme fund has a positive significant effect on agricultural sector's contribution to real gross domestic product. On the other hand, the effect of government expenditure on agriculture on agricultural sector's contribution to real gross domestic product is positive but not significant. Golley and Samuel (2021) The Impact of Commercial Bank Credit on Agricultural Sector in Nigeria (1993-2019). Their result of the study revealed that there was a significant positive relationship between Loan Assessment and Food Security in Nigeria[SU2.1].

Okuneye and Ajayi (2021) investigated the effect of commercial banks' credit for agriculture and government agricultural spending on agricultural production in Nigeria between 1980 and 2018 and found a long-term co-movement between agricultural government spending, interest rates and agricultural production in Nigeria. Florence & Nathan (2020) assess the impact of commercial banks' credit on agricultural growth in Uganda from 2008Q3 to 2018Q4 using Autoregressive Distributed Lag Model (ARDL). The findings showed that banks' credit has a

significant positive impact on agricultural output in the long-run and an insignificant impact in the short-run.

Okafor (2020) examine the effect of commercial banks credit on agricultural development in Nigeria using the Augmented Dickey Fuller test, Phillip-Perron test and OLS technique. The results reveal that bank credit to agriculture and ACGSF have significant positive effects on agricultural output. In another dimension, Orji, Ogbuabor, Anthony-Orji, &Alisigwe (2020) examine causality between agricultural financing and agricultural output in Nigeria using the Pairwise Granger causality test. The findings show no causal linkage between agricultural financing and agricultural output within the period under review. Also Osabohien et al (2020) used cointegration equations to examine the impact of agro-financing impacts on food production in Nigeria for the period 1981–2018. After testing the time series data for stationarity, the Canonical Cointegration regression approaches show that agro-financing is statistically significant in explaining the level of food production in Nigeria. One percent increase in farmers' access to agricultural finance is associated with an increase in food production by 0.002%–0.006%.

Aziz Bilbas (2018) examines the Effect of Commercial Banks' Credit on Agricultural Investment Development. The result shows that there is a positive and significant influence of commercial bank's credit on Agricultural Development in Kurdistan. George-Anokwuru (2018) examined deposit money banks' credit and agricultural sector output in Nigeria from 1985-2015. The results show that the regression coefficient of deposit money bank's credit to agricultural sector in explaining its contribution to agricultural output is positive and statistically significant. It also shows that interest rate appeared with negative sign but statistically not significant. Finally, the coefficient of money supply is positive and significantly related with agricultural output.

A careful review of different literatures (both theoretical and empirical) reveals that banks credit to the agriculture sector is necessary for improved output performance thereby enhancing economic growth in Nigeria. In spite of the increased academic interest in the subject under discussion, several issues relating to Banks credit and agricultural sector performance remain unsettled; most of them focused on economic growth and used simple methodology such as ordinary least square. This study, however, will employ VAR model to measure how agricultural output response due to the shocks of commercial banks' loans in Nigeria [SU3.1].

3.0 METHODOLOGY

3.1 Sources of Data

As earlier mentioned, the nature of the research work is quantitative base. The data to be used is time series and will be sourced from Central Bank of Nigeria Database and World development Indicator (2022) which covered the period of 1981 to 2022. The variables include agricultural output, Value of loan to agriculture, foreign direct investment and exchange rate.

3.2 Model Specification

A Vector Auto Regressive (VAR) model of five variables was employed. Sims (1980) developed the VAR model, he notes that, if there is true simultaneity among a set of variables,

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they should all be treated as an equal footing. There should not be any a prior distinction between endogenous and exogenous variables, Gujarati (2009). Therefore, the generalized form of the Vector Auto Regressive (VAR) is stated below

$$X_t = \alpha + \beta_1 X_{t-1} + \ \ldots\ldots\ldots + \beta_p X_{t-p} + \varepsilon_t eqn(1)$$

Where: Xt is a 4×1 vector of jointly determined endogenous variables containing AO, CACL, FDI and EXCR $\beta_1 \ldots\ldots \beta_p$ are k x k matrices of coefficient that relate lagged values of all the endogenous variables to current values of those variables, α is the vector of constant, and ε_t is a white noise disturbance.

The relationship between agricultural output (AO) and as well as other variables can be specified as follows:

AO= f(CACL, FDI, EXCR) … … … … (3.1)

Where

AO= Agriculture sector output

CALC = Value of loan to agriculture proxy for commercial banks' loan to agriculture

FDI = Foreign direct investment

EXCR = exchange rate

F = functional form

The econometric model can be specified as

$$AO_t = \ \alpha + +\beta_1 CACL_t + \beta_2 FDI_t + \beta_3 EXCR_t + \varepsilon_t \qquad 3.2$$

Where\alpha is intercept, \beta_1to\beta_4 are the parameters to be estimated, Eistheerrotermandt is the time period. The prior expectation of the parameters is all positive as $\beta_1, \beta_2 \ and \ \beta_3 > 0$. Also the AO, CACL and FDI are converted to natural logarithm due to the disparity of the data.

4.0 RESULT AND DISCUSSION

4.1 Descriptive Statistic

The natural starting point of data presentation and analysis is the examination of stochastic properties of the time series variables in order to know the pattern of the variables under study. Table 1 presents the result of descriptive statistic which includes the indicators of mean, minimum, maximum, standard deviation, skewness and kurtosis, as well as the test for normality of the variables. This gives us an insight about the pattern and distributions of the variables under study. From table 1 log of agricultural output (LAO) and log of Value of Loans Guaranteed to Agriculture (LCACL) have the mean of 8.824090 and 13.54710, while the mean of log of foreign direct investment (LFDI) and exchange rate (EXCR) are of 21.05223 and 115.6556 respectively. In terms of median, LAO and LCACL have 8.743078 and 13.68202

while, LFDI and EXCR have the median of 21.18565 and 114.8980 respectively. For maximum and minimum, LAO has a minimum of 7.742187 and a maximum of 9.856976. The minimum and maximum of LCALC, LFDI and EXCR are 10.11273 and 16.33773, 19.04551 and 22.90267, as well as 0.617708 and 425.9792 respectively. The distributions of the variables, like all other variables in the literature, appear to be normal, as shown by Skewness and Kurtosis as well as the Jarque-Bera tests as the Jarque-Bera test show the probability of the variables is greater than 0.05. The descriptive statistic presents in table 4.1 below:

Table 4.1 Descriptive Statistic

	LAO	LCACL	LFDI	EXCR
Mean	8.82409	13.5471	21.05223	115.6556
Median	8.743078	13.68202	21.18565	114.898
Maximum	9.856976	16.33773	22.90267	425.9792
Minimum	7.742187	10.11273	19.04551	0.617708
Std. Dev.	0.736539	2.140708	1.157383	119.1828
Skewness	0.031427	0.094427	0.046567	1.025345
Kurtosis	1.424274	1.390205	1.843541	3.230143
Jarque-Bera	4.352012	4.597432	2.355627	4.452019
Probability	0.113494	0.100388	0.307951	0.104089
Sum	370.6118	568.9781	884.1935	4857.537
Sum Sq. Dev.	22.24207	187.8879	54.92094	582385.6
Observations	**42**	**42**	**42**	**42**

Source: Author's Computation, 2023.

4.2 Unit Root Tests

Before conducting cointegration analysis, the time series properties of the series were checked first. Various methods can be used to examine the stationarity or otherwise of the series. In this study, two different unit root tests were employed in order to have the robust results. These are Augmented Dickey Fuller (ADF) and Phillips-Perron (PP) unit root tests. The tests are conducted at level and first difference using both with trend and intercept. All the two unit root tests have a null hypothesis stating that, the series in question has a unit root against the alternative that the variable does not has a unit root. Table 4.2 presents the results of various unit root tests with trend and intercept as:

Table 4.2 Unit Root Tests

	ADF unit root (at level)		PP unit root (at Level)	
Variables	**T statistic**	**Probability**	**T statistic**	**Probability**
LAO	-1.700329	0.7331	-1.858629	0.6575
LCACL	-1.36014	0.8578	-1.485276	0.8186
LFDI	-1.89965	0.63656	-1.89965	0.6366
EXCR	0.096299	0.9962	0.060992	0.9958

	ADF unit root(at 1st Difference)		PP unit root(at 1st Difference)	
ΔLOA	-5.980955	0.0001*	-5.979604	0.0001*
ΔLCACL	-5.662295	0.0002*	-5.662295	0.0002*
ΔLFDI	-8.589666	0.0001*	-8.768399	0.0001*
ΔEXCR	-4.93124	0.0014*	-4.797426	0.0021*

Source: Author's Computation, 2023

Note: * indicates Stationary at 1%level of significant respectively.

Table 4.2 presents the unit root tests using ADF and PP tests with trend and intercept. The results of ADF and PP unit root tests reveal that all the series are stationary at first difference at 1% level of significance. Therefore, an examination of table 4.2 reveals that, the series are all integrated of order and are thus characterized as I (1) processes. The results paved way to conduct the cointegration test. Therefore, Johansen cointegration test was employed.

4.3 Cointegration Test

Given that all the variables share common integration properties, we proceed with estimating their long-run relationship using Johansen (1991) cointegration test based on trace statistic test and Maximum Eigenvalue test. The result of the test is presented in the table 4.3 below

Table 4.3Johansen Cointegration Test

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None	0.455247	55.61406	63.87610	0.2035
At most 1	0.357653	31.31714	42.91525	0.4260
At most 2	0.252463	13.61206	25.87211	0.6894
At most 3	0.048133	1.973194	12.51798	0.9703

Trace test indicates no cointegration at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None	0.455247	24.29692	32.11832	0.3293
At most 1	0.357653	17.70508	25.82321	0.4001
At most 2	0.252463	11.63887	19.38704	0.4495

At most 3	0.048133	1.973194	12.51798	0.9703

Max-eigenvalue test indicates no cointegration at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Source: researcher's computation 2023

Table 4.3 presented the Johansen cointegration test and the results show the absence of cointegration among the variables in both trace test and Maximum Eigenvalue test which paved way to used standard (unrestricted) VAR. The unrestricted VAR chooses the optimal lag length in line with the information provided by the lag order selection criteria in order to avoid specification error. Table 4.4 presents the VAR lag order selection criteria.

Table 4. 4 VAR Lag Order Selection Criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-509.274	NA	195574.0	26.37302	26.58630	26.44955
1	-363.2957	247.0401	400.1903	20.16901	21.44868*	20.62814
2	-330.325	47.34257*	284.1357*	19.76026*	22.10631	20.60200*
3	-315.0731	17.98941	559.7029	20.26016	23.67259	21.48451

Note * indicates lag order selected by the criterion

Source: Researcher's computation 2023

Table 4.4 reveals that sequential modified LR test statistic (LR), Final prediction error (FPE), Akaike information criterion (AIC) and Hannan-Quinn information criterion all selected lag 2 while only Schwarz information criterion (SC) selected lag 1. Based on the result of VAR Lag Order Selection Criteria the Vector autoregressive (VAR) model was estimated using lag 2.

4.4 VAR Model Estimation

Since a long run cointegration was not found among the variables, then the researcher move to estimate Vector Autoregression (VAR) Model in order to check the response of agricultural output to shocks from commercial Banks' Loans and other variables in Nigeria. This is due to the fact that the obtained coefficients of the VAR models are difficult to interpret since they totally lack any theoretical background. In order to overcome this criticism, the advocates of VAR models estimate so called impulse response functions and variance decomposition. The impulse response function examines the response of the dependant variable in the VAR to shocks in the error terms while; the variance decomposition provides information about the relative importance of each random innovation in affecting the variables in the VAR.

4.4.1 Impulse Response Function (IRF)

The impulse responses trace out the responsiveness of the dependent variables in the VAR to shocks to each of the variables. Therefore, the impulse responses graphs will give us the

contemporaneous impact of the variables in the system against each other. It shows how an endogenous shock affects the other variables in the VAR in the generalized ordering. The impulse response figures are presented in figure 4.1 below.

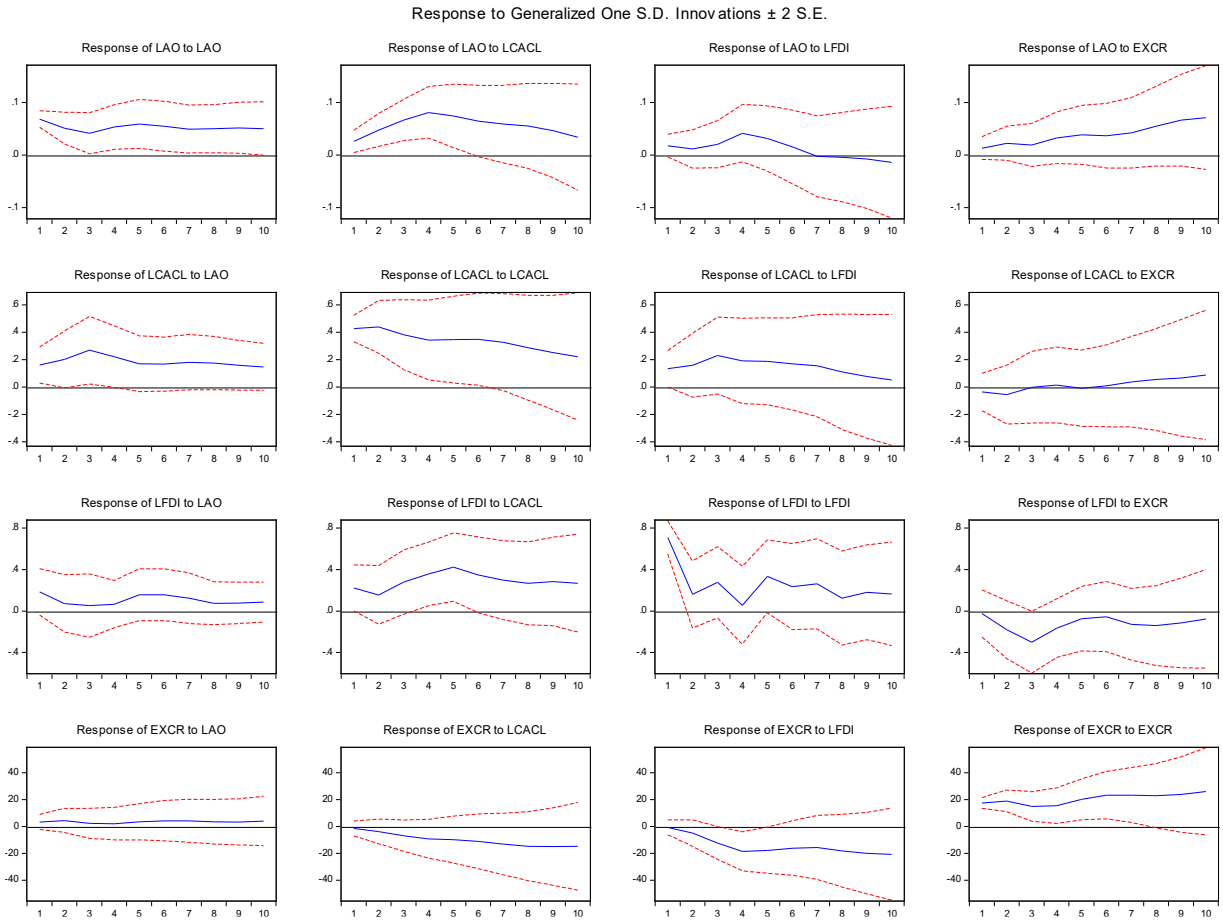

Figure 4.1 Impulse Response Function

Source: Researcher's computation 2023

Figure 4.1 shows the results of the VAR Impulse Responses function and our objective is to look into the response of agricultural output (LAO) due to a 1 unit shock to itself and other variables. The response of LAO to itself and other variables in figure 2 shows that, one unit shock to itself accounts for a positive response to itself throughout the periods. A one unit shock of Value of commercial Banks' Loans to Agriculture (LCACL) and exchange rate (EXCR) account for a positive response to Agricultural Output throughout the periods while foreign direct investment (LFDI) accounts for positive response to agricultural output in Nigeria at first five periods but it accounts for negative response to agriculture throughout the remaining periods.

4.4.2 Forecast Error Variance Decomposition

The impulse response functions show how an endogenous shock affects the other variables in the VAR; while, the variance decomposition offers details on the relative contribution of each

random innovation to the variation in the VAR. Therefore, the essence of using forecast error variance decomposition technique is to measure the fraction of forecast error variance for each of the variables under investigation to its shocks and also to shocks of other variables. Table 4.6 presents the VAR Forecast Error Variance Decomposition with specific focuses on Proportions of forecast error in Agricultural Output accounted by the variables under study.

4.6 Variance Decomposition of LAO:

Period	S.E.	LAO	LCACL	LFDI	EXCR
1	0.068573	100.0000	0.000000	0.000000	0.000000
2	0.093048	84.41412	10.87638	1.060806	3.648693
3	0.117779	65.12327	28.71360	0.736895	5.426235
4	0.149961	52.80860	37.04392	1.234563	8.912922
5	0.174998	50.15824	37.60905	0.938998	11.29372
6	0.192975	49.34249	37.03208	1.062871	12.56256
7	0.209577	47.38230	35.70713	2.584562	14.32601
8	0.226947	45.28074	33.46159	3.716259	17.54141
9	0.244428	43.52912	30.26260	4.643415	21.56487
10	0.260479	42.07345	27.03970	5.683232	25.20362

Source: Researcher's computation 2023

The result of VAR Forecast Error Variance Decomposition of LAO in table 4.6 reveals that, Agricultural output accounts for 100% variation to itself in the first period and from there it continues decline throughout the remaining periods under consideration as at 10th period it accounts for 42.07% variation to itself. The government expenditure (LGEXP) accounts for 0.00% variation to agriculture in the first period from there it's variation to agricultural output increase throughout the periods as at 10th period it accounts for 29.76% variation to agricultural output. The commercial Banks' Loans to Agriculture (LCACL) accounts for 0.00% variation to agricultural output in the first period from there the variation to agricultural output continue to increase up to 37.61 in the 5th period and from there it continues to decline up to 27.04% in the last 10th period. The result also reveals that, FDI accounts for less than 6% variation to agricultural output throughout the periods, while exchange rate accounts for 0.00% variation to agricultural output in the first period and from there it's variation to agricultural output continue to increase up to 25.20% in the last period respectively [SU4.1].

5.0 CONCLUSION AND RECOMMENDATIONS

This study employed secondary date in investigating the impact of Commercial Banks' Loans on agricultural output in Nigeria for the period of 1981 to 2022. The variables used in the study are: Agricultural Output, Commercial Banks' Loans to agriculture, FDI and Exchange Rate. The study used Vector Autoregressive (VAR) model in order to achieve the objectives of the study. Therefore, based on the results obtained, the study concludes that, Commercial Banks' Loansto Agriculture has significant impact on agricultural output in Nigeria as its variation to agricultural output is about 38% in the fifth periods and its shock to agricultural output is positive throughout the period.In addition the study concludes that FDI does not have much

significant effect on agricultural output in Nigeria as its contribution to agricultural output is less than 6%.More so, the study concludes that. exchange rate also has significant impact on agricultural output in Nigeria and its variation to agricultural output is more than 25% at the end the period.

From the findings, the study recommends that, government should come up with agricultural policy that allow farmers access to loans especially with low interest rate if not free interest on the loan to the farmers as it is indicates from the findings it has significant impact on agricultural output in Nigeria. More so, the government through the Central Bank of Nigeria and other regulatory bodies should try as much as possible to minimize the exchange rate volatility or fluctuations and ensure availability of foreign currencies in the country which will in turn will be use to supply all necessary agricultural equipments from abroad. Exchange rate stability will help stabilize the Nigerian currency against other currencies of the world which will in turn create value for the county's currency [SU5.1].

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