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BANK CREDIT ACCESS AND ITS IMPACT ON AGRICULTURAL PRODUCTIVITY IN NIGERIA

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Abstract
Bank credit access is a prominent factor affecting the performance of the agricultural sector. Hence, the performance of the agricultural sector in Nigeria largely depends on the provision of affordable credit services to both the rural and urban populations engaged in the agricultural sector. Several policies have been made to solve these problems in which the banks have been targeted to provide pivotal roles in the area of funding through the provision of credits. Hence, the main objective of this study is to examine the relationship between deposit money bank (DMB) credit, interest rate, and agricultural productivity in Nigeria. This study used the auto-regressive distributive lag (ARDL) model and bounds test with the aid of Eviews software to estimate the dynamic, short, and long-run relationship among the variables. The time series data are extracted from the CBN Annual and Quarterly Reports, the CBN Statistical Bulletin, and World Development Indicator (online). These data include the banks' credit to the agricultural sector, interest rates, and agricultural GDP. Some information was also retrieved from the websites. The result of the bounds test revealed that bank credit contributed to a 65% increase in agricultural productivity in Nigeria. This study, therefore, recommended a low bank interest rate to give room for better agricultural productivity.
Keywords: Bank credit, Agricultural productivity

Introduction

A major way of achieving a reduction in poverty and alleviating the poor welfare situation of the populace is to increase agricultural productivity. This will, at the micro level, translate to an increase in farm income, food security, poverty reduction, and improved rural household welfare.
Agriculture happened to be the primary foreign exchange earner for Nigeria till the mid-70s but the focus is now on the mineral sector. Inadequate capital is considered the single most important factor affecting the performance of the agricultural sector. Hence, the performance of the agricultural sector in Nigeria largely depends on the provision of affordable financial services to both the Rural and Urban populations engaged in the Agricultural sector.

Deposit Money Banks are the major sources of financial services in the form of loans and advances and that is why Deposit Money banks in Nigeria have been directed to devote a major part of their funding to finance this sector, besides other government-owned banks like the Nigerian Agricultural and Cooperative Bank (NACB) (Sunny, 2013).

Till this moment, the kind of relationship between the banking sector and the agricultural sector in Nigeria is still debatable. It is therefore pertinent to examine the impact of Deposit money banks' credit on agricultural productivity.

Presently in Nigeria with her vast expanse of rich soil, a sizable number of her citizens suffer from hunger and starvation as a result of neglect of agriculture. Few agro-industries around depend greatly on the importation of necessary raw materials in their production and many of the Nigerian youths roam about unemployed. It is of note that various policies have been made to solve these problems in

which the banks have been targeted to provide pivotal roles in the area of funding through the provision of credits. However, the fact remains that the banks precisely the commercial banks have not come to grapple with the problem as much has not been felt in the area of credits to agriculture.

Agriculture which used to be the only source of food to the teeming population and the major foreign exchange earner in Nigeria as well as the provision of employment before the discovery of oil has not been performing well in recent years, its contribution to GDP has been falling, the nation is depending on other countries for food while agro-allied industries available in the country depend greatly on imported raw materials. It has been envisaged that lack of finance could be one of the major problems facing the sector.

The main objective of this study is to examine the relationship between deposit money bank (DMB) credit, interest rate, and agricultural productivity in Nigeria. The specific objectives are:

- To examine the impact of Deposit Money Bank's Credit on Agricultural Output in Nigeria
- To examine the effect of interest rates on Agricultural Output in Nigeria

Literature review

According to Reis (2016), the gross domestic product of a nation's agriculture is the summation of the yearly output of its components. According to him, the output consists mainly of wheat, maize, rye, millet and barley, animal products, wine, and olive oil. Gross farm output value has also been described by the Department of Agriculture, Forestry and Fisheries (DAFF) as the sum of all the values of farm enterprises, which include crops and livestock enterprises plus sundry farm income.

Kareem, Osisanya, and Isiaq (2017), examined the effect of deposit money bank financing on agricultural sector output in Nigeria, covering the period 1981 to 2014 by using the Ordinary Least Square method. The study revealed that 99.6% of the variation in the real agricultural gross domestic product is explained by commercial banks' loans to agriculture. Ayegba and Ikani (2013), investigated the impact of agricultural credit on rural farmers in Nigeria by using a simple percentage to interpret the result. The study revealed that private money lenders constitute the major source of credit.

Dori (2016), used descriptive statistics and content analysis to examine the impact of agricultural credit guarantee scheme funds on the agricultural and economic development of Nigeria. By using the secondary data to analyze, the result revealed that in Nigeria the scheme had increased the flow of credit to the farmers and has expanded the beneficiaries' acquisition and adoption of modern farming inputs, output, earnings, and finally standard of living.

The study of Friday, Chris, and Fredrick (2016) employed Vector Autoregressive (VAR) approach to examine the impact of credit supply and various deposit money bank loan schemes on agricultural sector production in Nigeria. The study which covered the period 1981 to 2013 revealed that ACGSF performed poorly in explaining agriculture sector performance, while deposit money bank loans to agriculture had a significant impact on agricultural production in Nigeria.

The outcome of the related research study remains debatable which calls for further investigation. This study will therefore investigate the ease of accessing deposit money banks credits and its impact on agricultural output in Nigeria for the period 1991 – 2021.

The finance growth hypothesis postulated the supply-leading relationship between financial and economic development. It argued that the existence of the financial sector, as well-functioning financial intermediations in channeling the limited resources from surplus spending units to deficit spending units would provide efficient allocation of resources thereby leading the other economic

sectors in their growth process (Schumpeter work cited in Papka, Innocent, and Enam 2019). This research work will anchor on both the finance-led growth theory and the Balance Sheet Credit channel theory since the study is looking at the impact of commercial banks‟ credit on agricultural output in Nigeria.

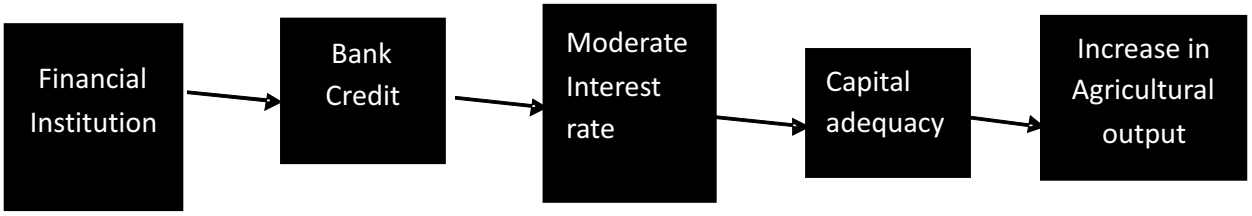

Fig 1: Theoretical framework adapted from Schumpeter theory
Source: Researcher's computation (2023)

Viable financial institutions will serve as a fountain of credit to borrowers (farmers) at moderate interest rates. This will enable capital adequacy in the agricultural sector and ultimately boost agricultural productivity.

Methodology

The research is on the impact of deposit money banks' credit on agricultural output in Nigeria (1991-2021). The work is to find out how to deposit money banks credit on agricultural output in Nigeria. The time series data are extracted from the CBN Annual and Quarterly Reports, the CBN Statistical Bulletin, and World Development Indicator (online). These data include the banks' credit to the agricultural sector, interest rates, and agricultural GDP. Some information was also retrieved from the websites.

This study used auto regressive distributive lag (ARDL) model and bounds test with the aid of Eviews software to estimate the dynamic, short and long run relationship among the variables,

From the variables extracted, the mathematical model can be specified as:

$$AGGDP = f(BCRD, INT) \text{ ----------(1)}$$

This can be written econometrically as:

$$AGGDP_{i,t} = \beta_0 + \beta_1 BCRD + \beta_2 INT + Uit \text{ ---------- (2)}$$

When logarithm is applied it becomes:

$$LAGGDP_{i,t} = \beta_0 + \beta_1 LBCRD + \beta_2 LINT + Uit \text{ -------- (3)}$$ where:

AGGDP = GDP of Agriculture that proxy Agricultural productivity
BCRD = Bank credit
INT = Interest rate
L = logarithm
β_0 = Intercept
β_1–β_2 = coefficients of the independent variables

The major innovation is the comparative trend analysis of agricultural financing during the military and democratic era which previous related studies have not been focused upon. To what extent were the banking policies used by various regimes promote agricultural output? The inclusion of government policy as a variable in the model has not been captured by any previous related research. Also, the study coverage period of research (1991 – 2021) shows the inclusion of current data which either serves as an update to related studies or exposes the current influence of global financial and economic crises which has never been investigated.

Results

Stationary tests were conducted on all the variables. All were stationary at the first difference I(1) except the interest rate which is stationary at level I(0).

Table1

ARDL Error Correction Regression
Dependent Variable: D(LAGGDP)
Selected Model: ARDL (4, 1, 3)
Case 2: Restricted Constant and No Trend
Date: 05/28/23 Time: 11:31
Sample: 1991 2021
Included observations: 27

ECM Regression
Case 2: Restricted Constant and No Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LAGGDP(-1))	0.339824	0.109722	3.097149	0.0069
D(LAGGDP(-2))	-0.197174	0.120981	-1.629790	0.1227
D(LAGGDP(-3))	-0.397491	0.110926	-3.583374	0.0025
D(LBCRD)	-0.063410	0.088226	-0.718721	0.4827
D(INT)	0.008875	0.006616	1.341487	0.1985
D(INT(-1))	-0.067686	0.010539	-6.422269	0.0000
D(INT(-2))	-0.033793	0.005707	-5.921775	0.0000
CointEq(-1)*	**-0.389232**	**0.052090**	**-7.472294**	**0.0000**

R-squared	0.839596	Mean dependent var	0.167642
Adjusted R-squared	0.780499	S.D. dependent var	0.157490
S.E. of regression	0.073785	Akaike info criterion	-2.134120
Sum squared resid	0.103441	Schwarz criterion	-1.750168
Log-likelihood	36.81062	Hannan-Quinn critter.	-2.019951
Durbin-Watson stat	2.478774		

* p-value incompatible with t-Bounds distribution.

In Table 1 above, CointEq(-1)* represents the lagged error correction term. The coefficient is -0.389232 and the t-statistic is -7.472294 which is statistically significant with the p-value of 0.0000. This means the speed of adjustment back to equilibrium is 38.9%. It also confirms a long-run relationship existence among the variables.

Table 2

ARDL Long Run Form and Bounds Test
Dependent Variable: D(LAGGDP)
Selected Model: ARDL(4, 1, 3)
Case 2: Restricted Constant and No Trend
Date: 05/28/23 Time: 11:43
Sample: 1991 2021
Included observations: 27

Conditional Error Correction Regression

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.452996	0.471151	0.961467	0.3506
LAGGDP(-1)*	-0.389232	0.109771	-3.545863	0.0027
LBCRD(-1)	0.269080	0.086340	3.116512	0.0066
INT(-1)	0.060722	0.015030	4.040159	0.0009
D(LAGGDP(-1))	0.339824	0.136402	2.491334	0.0241
D(LAGGDP(-2))	-0.197174	0.137868	-1.430163	0.1719
D(LAGGDP(-3))	-0.397491	0.152641	-2.604087	0.0192
D(LBCRD)	-0.063410	0.130606	-0.485507	0.6339
D(INT)	0.008875	0.008837	1.004268	0.3302
D(INT(-1))	-0.067686	0.012948	-5.227354	0.0001
D(INT(-2))	-0.033793	0.006863	-4.923770	0.0002

* p-value incompatible with t-Bounds distribution.

Levels Equation
Case 2: Restricted Constant and No Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LBCRD	**0.691309**	**0.053179**	**12.99959**	**0.0000**
INT	**0.156004**	**0.059920**	**2.603552**	**0.0192**
C	**1.163820**	**1.028642**	**1.131414**	**0.2746**

EC = LAGGDP - (0.6913*LBCRD + 0.1560*INT + 1.1638)

F-Bounds Test		Null Hypothesis: No levels of relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
			Asymptotic: n=1000	
F-statistic	**11.75478**	**10%**	**2.63**	**3.35**

In Table 2 above, the result of the ARDL shows that bank credit has about a 69% effect on agricultural productivity while interest rate has a 15.6% effect on agricultural productivity. Both effects are statistically significant with their p-value less than 0.05.
The result of the Bounds test gave the Test statistic with a value of 11.75478 greater than the critical values 3.35, 3.87, 4.38, and 5 at 10%, 5%. 2.5% and 1% significance level respectively. This is evidence of the existence of both short and long-run relationships between Bank credits, interest rates, and agricultural productivity.

N-STEP STABILITY TEST

The result of the N-STEP recursive test shows that Fig. 1 below revealed that the N-step probability plot does not cross the 5% critical lines. This connotes that the estimated coefficients are relatively stable. This validated the strong reliability of the data used.

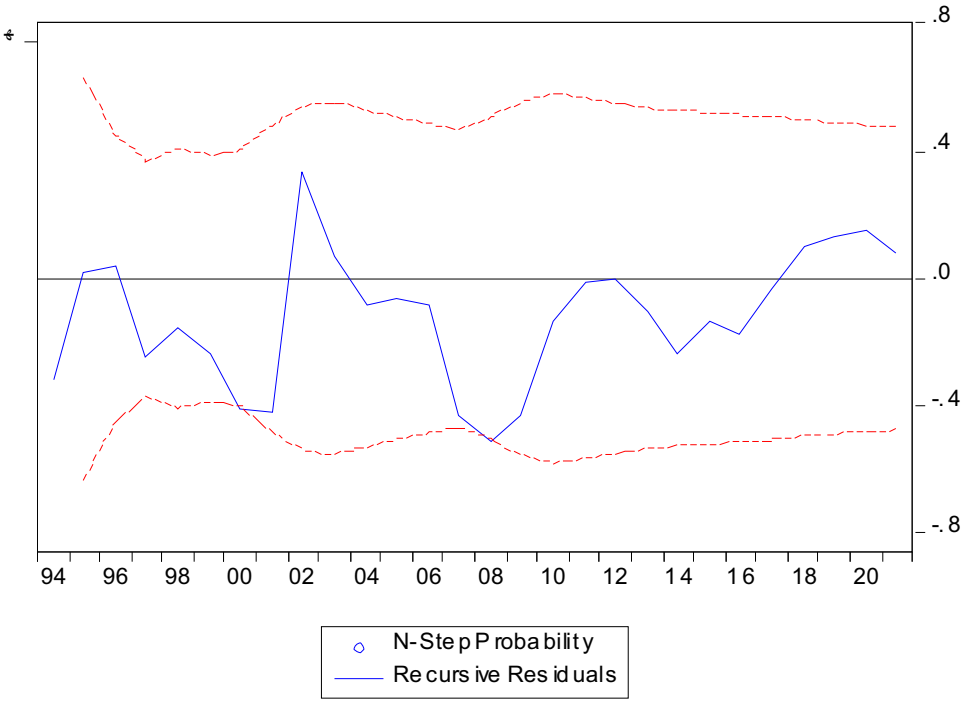

Fig. 1

Conclusion and Recommendation

The result of the ARDL test revealed that bank credit in Nigeria contributed about 69% positive change in agricultural output. Hence, this study, therefore, recommends a lower bank interest rate to give room for better agricultural productivity

References:

Ayegba, O. and Ikani, D.I. (2013). An Impact Assessment of Agricultural Credit on Rural Farmers In Nigeria. Research Journal of Finance and Accounting 4(18), 80-89

Dori, N. A. S. (2016). The impact of Central Bank of Nigeria's Agricultural Credit Guarantee Scheme Fund on agricultural and Economic Development of Nigeria. International Journal of Political Science and Development 4(3), 63-74.

Kareem, R. O., Osisanya, S.O and Isiaq, T.S. (2017). Commercial bank financing and agricultural output in Nigeria (1980-2014). Journal of Research in Business Economics and Management 8(1), 1302-1310.

Papka Z.M, Innocent M & Enam P.A (2019). Commercial banks credit and agricultural output in Nigeria. International Journal of Research and Innovation in Sciences. Vol. 3(4).

Reis, J. (2016). The Gross Agricultural Output of Portugal: A Quantitative, Unified Perspective, 1500–1850. EHES working papers in Economic History (98) http://www.ehes.org/EHES_98.