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Assessing the Sectoral Growth Effect of Commercial Bank Lending in Nigeria

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Abstract: Unlike prior studies that examined the effect of commercial bank lending on aggregate economy, this study differs by examining the effect of sectoral commercial bank lending on real sectors in Nigeria. Autoregressive Distributed Lag (ARDL) approach was adopted to capture the objective, using Nigeria data from 1981–2021. The empirical findings established both short and run positive relationship between commercial bank lending and sectoral growth (agricultural and manufacturing sectors) in Nigeria. The study outcomes further revealed that gross capital formation and human capital boost agricultural performance in Nigeria, while the duo of capital formation and government expenditure dampened the growth of manufacturing sector. This study therefore concludes that sectoral commercial bank lending is a panacea to propel the growth of real sectors in Nigeria. Based on the findings of this study, it is recommended that monetary authority should engage in a persistent increase in the channelization of commercial bank lending to agricultural and manufacturing sectors. This will create enabling credit facility environment to revitalize Nigerian real sector and embark on large scale production.

Keywords: Sectoral Growth, Commercial Bank Lending, ARDL

1. INTRODUCTION

The Nigerian banking industry plays a prominent role via bank lending in the growth of her economy. Banks mobilize and disburse significant volumes of fund to the private sector investors and government to finance production, consumption and commerce which in turn stimulates the process of economic growth. Supporting the preceding strand is Abina (2020), who averred that deposit money banks, through bank lending and loan, play a vital role in providing credit facilities to the growth of real sector in Nigeria. Via their intermediation roles, they mobilise resources

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from surplus units and redirect them to deficit units for productive activities within an economy, thereby promoting growth in different sectors of the economy.

Bank lending refers to funds granted to individuals, businesses, and governments to cover short-term or long-term deficit operations (Mbat, 2006). Bank lending comprises short-term, medium-term, and long-term loans and advances. Bank lending is divided into two categories: lending to the private sector and public sector. If deposit money banks can't grant credit to deficient economic units within their immediate operational environment, this will hamper the growth of economy with negative multiplier effect on bank deposits and consequently its ability to generate income would be hampered (Honohan, 1997 and Galac, 2001). Loanable funds account for approximately fifty percent or more of most banks' total assets and approximately half to two-thirds of their revenue (Udoka and Effiong, 2006). Thus, lending became the first and most significant function of banks.

The role is significant for a variety of reasons. Firstly, the wider populace or customers utilize loans to judge the stability of banks. Banks willingness and ability to grant credit facilities are considered to be more stable than those that frequently reject loan proposals from their customers. Second, lending is regarded as a statutory requirement by the monetary authority, which may require a certain percentage of bank lending to certain sectors such as agriculture, manufacturing, small scale industries, etc. Third, lending is used as a tool in the execution of government monetary policies, which affect money supply and demand in the economy. Fourth, lending has an impact on the production pattern, the degree of entrepreneurship, and subsequently, aggregate productivity and output (Oluitan, 2009).

Similarly, Ugoani (2013) emphasized the importance of banking activities to economic growth, particularly through bank lending to various sectors to fund investment operational costs. These credits are expected to boost investment and in in turn economic growth. According to the Central Bank of Nigeria (2013), the various sectors of bank lending to the Nigerian economy include the production sector, general commerce sector, services sector, etc. For example, businesses obtain loan to purchase machinery and equipment, while farmers acquire loan to buy farm equipment and inputs like seeds and fertilizer, as well as to build various types of farm structures. Loans are acquired by government entities to cover a variety of recurrent and capital expenditures.

Recognising these critical roles, successive Nigerian governments have continued to embark on policy measures and programed in order to achieve sectoral growth through bank lending and policies (Orji, 2012). The policies and programmes include Small Scale Industries Credit Scheme, Industrial Development Centres,

National Economic Reconstruction Fund (NERFUND), Structural Adjustment Programme (SAP), Nigerian Bank for Commerce and Industries, Nigerian Industrial Development Bank, Agricultural Credit Guarantee Scheme (ACGSF), Commercial Agricultural Credit Scheme (CACS), Bank of Industry (BOI), Interest Drawback, Anchor Borrowers' Programme, etc. However, despite the aforementioned policy measures and programmes, one will undoubtedly agree that these have not yielded the desired results in terms of their contributions to GDP in Nigeria given the most recent data released by the National Bureau of Statistics (NBS) for Q4 2021. In the same vein, Adeniyi *et al.* (2015) and Abubakar and Gani (2013) averred that the real sector in Nigeria continues to face difficulties in obtaining financial resources, particularly from commercial banks, which hold about 90 percent of total financial sector resources coupled with the high interest rates which dissuade many firms from bank borrowing. Other daunting financial constraints include the diversion of bank loans to the oil and gas industries at the detriment of vital real sectors such as agriculture manufacturing and service sectors.

Against this backdrop, this study investigates the effect of bank lending on sectoral performance in Nigeria. Furthermore, given the current government's policy of diversifying the economy from oil to non-oil in which agricultural, manufacturing, and service sectors are pivotal on the one hand, and the recent hike in interest on loan from 11.5 percent to 13 percent by Central Bank of Nigeria on the other, calls for an empirical examination of effect of bank lending. Also, there is a plethora of extant literature on this topic, such as Akinwale (2018); Sadaf et al (2019); Chi et al (2020); Abh et al (2020); Samuel et al (2022); etc, but they were either focused on aggregate economy or one sector specific, neglecting three real sectors (agricultural, manufacturing, and service sectors). The neglect of this vital issue in the existing literature created one of the empirical gaps for which this study will be carried out. Hence, this study fills these gaps by examining the effect of bank lending on sectoral performance in Nigeria. The rest of the paper is divided into five sections of literature review, methodology of the study; analysis of the result; and conclusion and policy recommendations.

2. LITERATURE REVIEW

2.1. Theoretical Literature Review

The theoretical framework for this study is adapted from (Patnaik and Vasudevan, 1998), which tries to factor the degree of openness of an economy in the analysis

of the influence of both internal and external factors on interest rate movements in a semi-open economy like Nigeria. Suppose we have a closed economy, in which there is no inflow or outflow of capital and the demand for money is the demand for real money. In such an economy, money is held by the economic units purely to finance transactions and increase the demand for money with real output. However, it is worthy of note, that holding money has an opportunity cost that is measured by the nominal rate of interest, with higher interest rates discouraging the holding of wealth in the form of money. If M is assumed to be the nominal stock of money and P is the price level, real money demand is defined as M/P, which is a function of the interest rate, i and the output, Y. Short run equilibrium in the money market exists, when the demand for money is equal to the supply of money.

2.1.1. Loan Pricing Theory

Banks cannot always set high interest rates. Banks should consider the problems of adverse selection and moral hazard since it is very difficult to forecast the borrower type at the start of the banking relationship (Stiglitz and Weiss, 1981). If banks set interest rates too high, they may induce adverse selection problems because high-risk borrowers are willing to accept these high rates. Once these borrowers receive the loans, they may develop moral hazard behaviour or so called borrower moral hazard since they are likely to take on highly risky projects or investments (Chodecai, 2004). From the reasoning of Stiglitz and Weiss, it is usual that in some cases we may not find that the interest rate set by banks is commensurate with the risk of the borrowers.

2.2.2. Theory of Multiple-Lending

It is found in literature that banks should be less inclined to share lending (loan syndication) in the presence of well-developed equity markets. Both outside equity and mergers and acquisitions increase banks' lending capacities, thus reducing their need of greater diversification and monitoring through share lending (Carletti, 2006). This theory has a great implication for banks in Nigeria in the light of the recent 2005 consolidation exercise in the industry.

2.2.3. Credit Market Theory

A model of the neoclassical credit market postulates that the terms of credits clear the market. If collateral and other restrictions (covenants) remain constant, the interest rate is the only price mechanism. With an increasing demand for credit and

a given customer supply, the interest rate rises, and vice versa. It is thus believed that the higher the failure risk of the borrower, the higher the interest premium (Ewert, 2000).

2.2. Empirical Review

Different studies have been conducted in many countries to investigate the relationship between bank lending and economic growth and sectoral performance, with varying results. For example, Sogules and Nkoro (2016) examined the impact of bank lending on agricultural and manufacturing sectors on economic growth using annual time series data from 1970 to 2013. Co-integration and Error Correction Mechanism (ERM) were adopted for the analysis and the results demonstrated a long-run relationship among bank credits, agriculture, manufacturing sectors and economic growth. Given the ERM results, the study showed that bank credits to the agricultural sector exhibited insignificant negative impact on economic growth, whereas bank credits to the manufacturing sector revealed negative impact on economic growth in Nigeria. As a result, the study recommends that bank credits to the agricultural and manufacturing sectors be closely monitored to ensure that funds intended for those sectors are not diverted to other uses.

Assessing the effect of bank lending on economic growth in Nigeria over the period of 1980 to 2016, Akinwale (2018) employed Dynamic Ordinary Least estimation technique and cointegration test and the result revealed the existence of long run relationship among the variables of interest. The findings also exhibited a unit percent decrease in bank lending rates resulted in a 118 percent rise in economic growth. Furthermore, the Greenwood and Jovanovic Hypothesis proved that when bank lending rates fell, economic growth increased, and this is statistically significant at the 1% level. The study concluded that decreasing bank lending rates boosted economic growth during the study period, necessitating policy recommendations for lowering bank lending rates in order to boost economic growth in Nigeria.

In another study by Courage Ose Eburajolo and Leonard Nosa Aisien (2019) who employed co-integration and error correction mechanism (ECM) to assess the effect of commercial bank sectoral credit to the manufacturing and agricultural sub-sectors on economic growth in Nigeria with time series data spanning from 1981 to 2015. To examine this study, a three-equation model was specified, and the empirical results demonstrated that commercial bank credit to the agricultural and manufacturing subsectors significantly impacted economic growth in Nigeria, both in the short and long run. Furthermore, financial sector development boosts the growth

effects of commercial banks' credit to the agricultural and manufacturing sectors of the economy. The study recommended that Nigeria's apex bank should put in place deliberate policy to embolden deposit money banks to increase credit to certain sectors of the economy.

Furthermore, Sadaf et al (2019) empirically investigated the role of banking sector credit to enterprises and households on Pakistan's economic growth from 1982 to 2017. Using the Autoregressive Distributed Lag (ARDL) bound approach to cointegration, the study distinguished the role of banking sector loans to enterprises and households in economic growth. The findings indicated that enterprise credit has a favourable and significant impact on Pakistan's economic growth. In contrast, the other component of private credit (household credit) does not contribute to economic growth. In order to promote sustainable economic growth in Pakistan, the study proposed that the central bank adjust its credit policy for the household sector and encourage enterprise credit.

In the instance of symmetry and asymmetry effect of bank lending, Ademu *et al.* (2019) examined the relationship between bank credit and Nigerian manufacturing sector output using annual time series data from 1986 to 2017. The study employed Non-linear Autoregressive Distributed Lag (NARDL) framework and the bounds test result confirms the presence of a long-run relationship between the variables of interest. The short-run results also show a positive relationship between manufacturing output and negative bank credit shocks from the current period up to the two-period lag. Furthermore, the positive shocks of bank credit were found to have a positive effect on manufacturing output during the current period, but this relationship changed to a negative at one-period and two-period lags. Given the Wald test results, the study concludes that both negative and positive shocks have an impact on manufacturing sector output.

To test the effect of financial development on agriculture productivity in selected African countries, Chi et al (2020) investigated the long-term causal relationship between banking sector development and agricultural productivity in the CEMAC countries from 1990 to 2018, using Autoregressive Distributed Lag and Vector Error Correction Model techniques. The findings indicated that in the long run, the banking sector and agricultural productivity in the CEMAC region are related. Also, the findings demonstrated a bidirectional relationship between bank domestic credit to the private sector (DCPSB) and agricultural value added (AGRVA) to GDP. This implied that agricultural production and banking sector expansion in the CEMAC region were mutually beneficial.

Anh *et al.* (2020) used indicator saturation break test, Autoregressive Distributed Lag Bounds test, and Toda-Yamamoto Granger causality test to examine the impact of bank credit on agricultural performance in Vietnamese from 2004Q4 to 2016Q4. The findings revealed that agricultural credit had a short- and long-run positive impact on agricultural output. Furthermore, there is unidirectional causality from agricultural credit to agricultural output. In the same vein, Bahsi and Cetin (2020) used an ordinary least squares (OLS) approach to analyze the impact of agricultural financing on Turkish agricultural production from 1998 to 2016. According to the findings, agricultural credit had a significant and positive impact on agricultural output.

Adesola Adebisi and Ewa Uket (2020) investigated the effect of aggregate bank credits, total bank deposits, and interest rate spreads on Nigerian economic growth from 1984 to 2017. For data analysis, the study used descriptive statistics and the Autoregressive Distributive Lag (ARDL) Model. The findings revealed that aggregate bank credits, aggregate bank deposits, and interest rate spreads have insignificant effects on the growth of the Nigerian economy in the short and long run respectively. The study recommended that deposit money banks should build up efforts on deposit mobilization to boost the availability of loanable funds for lending as this will boost productivity and increase Nigeria's economic growth; and interest rates should be set as low as reasonably achievable to encourage investors to source for loans and depositors to increase their deposits for business expansion in Nigeria.

Samuel *et al* (2022) investigated the composite effects of monetary policy on bank lending and Nigerian economic performance from 1986 to 2020 using descriptive statistics, correlation matrix and Unrestricted SVAR techniques. The study used secondary data on broad money supply, monetary policy rate, aggregate lending to private and public sectors, exchange rate and inflation rate as monetary policy indicators sourced from Central Bank of Nigeria and National Bureau of Statistics. Findings from structural VAR demonstrated that monetary policies on bank lending had significant effect on economic performance. Individually, the results showed that money supply, monetary policy rate, exchange rate, and bank lending all have a positive and significant effect on economic performance, whereas inflation has a negative but insignificant effect. The findings show that MPR and BL are the key determinants of economic performance, implying that monetary policy rates and lending to the private and public sectors exhibit significant impact on economic performance in Nigeria.

3. METHODOLOGY

3.1. Data Description

The study utilizes time series data on Nigeria from 1981 to 2021 in all the variables under consideration. The data on bank lending to agricultural and manufacturing sector, agricultural and manufacturing sector performance are sourced from Central Bank of Nigeria (CBN) Statistical Bulletin. While data on human capital (gross enrollment in primary school), gross capital formation as the share of GDP and government expenditure (government's final consumption expenditure as a share of GDP), are obtained from World Development Indicator (WDI). Regarding our set of control variables, following (Pham, 2019; Osinubi and Olomola, 2020; Pusra *et al,* 2021, Noureen *et al* 2022 and Omosuyi, 2023). we added gross fixed capital formation, human capital, and government expenditure (government's final consumption expenditure as a share of GDP). In the first instance, investment on human capital via education and health is one of the best strategies to boost performance of real sectors (Pusra *et al,* 2021). *Based on the extant literature and theoretical clarification which underpins the significance of these variables in boosting sectoral growth, the coefficients of the above variables are all anticipated to exhibit positive on agricultural and manufacturing sectors performance. Thus, data sources, measurement and descriptions are well presented in Table 1.*

Table 1: Variables and data used in the analysis

S/N	*Variables name*	*Measurement*	*Data Source*
1	Agricultural output	Share of agricultural output to RGDP	CBN Statistical Bulletin, (2021)
2	Manufacturing output	Share of manufacturing output to RGDP	CBN Statistical Bulletin, (2021)
3	Bank lending to agriculture sector	Bank lending to agriculture	CBN Statistical Bulletin, (2021)
4	Bank lending to manufacturing sector	Bank lending to manufacturing sector	CBN Statistical Bulletin, (2021)
5	Gross capital formation	Gross capital formation as percentage of GDP	WDI (2021)
6	Human capital	Gross enrollment in primary school	WDI (2021)
7	Government expenditure	Government's final consumption expenditure as a share of GDP	WDI (2021)

Sources: author's computation

3.2. Model Specification

Consistent with the modeling styles of extant studies (Sadaf et al 2019; Adesola and Ewa, 2020), which investigated the effect of aggregate bank credits, total bank deposits, and interest rate spreads on economic growth an empirical model is specified as thus:

$$agrp_t = \alpha_0 + \alpha_1 cbla_t + \alpha_2 gcf_t + \alpha_3 hum_t + \alpha_4 g\exp_t + \varepsilon_t \quad (1)$$

$$manf_t = \alpha_0 + \alpha_1 cblm_t + \alpha_2 gcf_t + \alpha_3 hum_t + \alpha_4 g\exp_t + \varepsilon_t \quad (2)$$

Where AGRP is agricultural sector output; MNFT represents manufacturing sector output; CBLDA represents commercial bank lending to agricultural sector; CBLM is commercial bank lending to manufacturing sector; GCF = gross capital Formation; HUM is Human capital development; GEXP is government expenditure; α_1 = intercept, α_1 to α_{4s} are coefficients to be estimated in model (1 & 2) and ε = Error term. The above models are carried out within the framework of Autoregressive Distributed Lag (ARDL) technique. There are number of advantages of using ARDL model also called 'Bound Testing Approach' as introduced by Aa it is developed by Pesaran *et al.* (2001, 1999), the technique has a number of advantages over the conventional Engle Granger two-step procedure (1987) and Maximum likelihood methods of co-integration (Johansen and Juselius, 1990; Johansen, 1988): the ARDL model is the more statistically significant approach to determine the cointegration relation in small samples (Narayan, 2004; Pesaran *et al.,* 2001); unlike other co-integration techniques, it does not require all of the regressors to be integrated of the same order (Pesaran *et al.,* 2001); the approach is equally possible for different variables to have different optimal numbers of lags while in Johansen-type models this is not permitted. The ARDL models are specified below:

$$\Delta agrp_t = \alpha_0 + \sum_{i-1}^{p} \alpha_{1i} \Delta agrp_{t-1} + \sum_{i-1}^{p} \alpha_{2i} \Delta cbla_{t-1} + \sum_{i-0}^{p} \alpha_{3i} \Delta gcf_{t-1} + \sum_{i-0}^{p} \alpha_{4i} \Delta hum_{t-1} + \sum_{i-0}^{p} \alpha_{5i} \Delta g\exp_{t-1} \quad (3)$$
$$\beta_{6i} agrp_{t-1} + \beta_{7i} cbla_{t-1} + \beta_{8i} gcf_{t-1} + \beta_{9i} hum_{t-1} + \beta_{10i} g\exp_{t-1} + \varepsilon_t$$

$$\Delta manp_t = \alpha_0 + \sum_{i-1}^{p} \alpha_{1i} \Delta manp_{t-1} + \sum_{i-1}^{p} \alpha_{2i} \Delta cblm_{t-1} + \sum_{i-0}^{p} \alpha_{3i} \Delta gcf_{t-1} + \sum_{i-0}^{p} \alpha_{4i} \Delta hum_{t-1} + \sum_{i-0}^{p} \alpha_{5i} \Delta g\exp_{t-1} \quad (4)$$
$$\beta_{6i} agrp_{t-1} + \beta_{7i} cblm_{t-1} + \beta_{8i} gcf_{t-1} + \beta_{9i} hum_{t-1} + \beta_{10i} g\exp_{t-1} + \varepsilon_t$$

Where $\alpha_1, \alpha_2, \alpha_3, \alpha_4, \alpha_5$ and $\beta_6, \beta_7, \beta_8, \beta_9, \beta_{10}$ are the short-run and long-run coefficients of explanatory variables for equation (3 &4). While Δandε_t are first difference and error term respectively.

4. EMPIRICAL RESULT AND DISCUSSION

4.1. Preliminary Analysis

4.1.1. Summary of Descriptive Statistics

Table 2 displayed summary estimates of the variables utilized in this research. The results of the descriptive statistics showed that while the mean was very close to the median for most variables, there was still a level of discrepancy for others. The highest median and mean values in absolute term with respect to the two sectors under study were recorded by the agricultural sector, followed by the manufacturing sector. However, commercial bank lending to manufacturing sector had the highest deviation around the average as its standard deviation of 2.338 was highest. This showed that commercial bank lending to manufacturing sector was relatively volatile this may have traced to multiple agricultural loan financing policies by the Government. In terms of skewness, the variables were both positively and negatively skewed and the kurtosis for most of the variables were platykurtic.

Table 2: Summary of Descriptive Statistics

	AGR	*MANF*	*CBLA*	*CBLM*	*GCF*	*GEXP*	*HUM*
Mean	8.799	8.305	3.587	4.832	3.464	1.070	0.407
Median	8.522	8.183	3.882	5.332	3.521	0.745	0.398
Maximum	9.838	8.808	7.285	8.316	4.493	2.246	0.680
Minimum	7.742	7.972	-0.526	0.978	2.702	0.093	0.179
Std. Dev.	0.727	0.288	2.241	2.448	0.500	0.775	0.179
Skewness	0.066	0.653	-0.231	-0.254	0.092	0.165	0.099
Kurtosis	1.435	1.891	1.961	1.648	2.190	1.546	1.488
Jarque-Bera	4.212	5.014	2.210	3.563	1.179	3.810	3.972
Probability	0.121	0.082	0.331	0.168	0.555	0.150	0.137
Observations	41	41	41	41	41	41	41

Source: Author's computation from eview 10

4.1.2. Unit Root Test

Series normality was tested using Augmented Dickey Fuller (ADF) and Phillip Perron (PP) tests. These tests are shown in Table 3. The results of the two unit root tests are complementary, as all series showed that I(1). This clearly explains the adoption of ARDL-related test evaluation methods.

Table 3: Unit Root Test

ADF				*PP Unit Root Test*		
Variables	*Level*	*First Diff.*	*I(d)*	*Level*	*First Diff.*	*I(d)*
Logcbla	-0.840	7.154*	I(1)	-1.157	-7.604*	I(1)
Logcblm	-0.786	-5.046*	I(1)	-0.760	-5.035*	I(1)
Logagr	-0.280	-6.012*	I(1)	-0.283	-6.011*	I(1)
Logmanf	-1.207	-4.686*	I(1)	-1.381	-4.686*	I(1)
Loghum	0.445	-3.292**	I(1)	0.105	-3.179**	I(1)
Loggcf	-2.234	-4.657*	I(1)	-1.413	-4.771*	I(1)
Loggexp	-1.413	-6.543*	I(1)	-1.96	-6.572*	I(1)

Source: Author's computation from eview 10

All the variables are in the logarithm form. Note: [*] and [**] indicate significant at 1% and 5%, respectively

4.1.3. Cointegration

The results of the Bounds test determine the type of model that would be estimated. The decision rule states that short-run and long-run ARDL models should be estimated for models that show cointegration. Estimates from Table 4 indicated the results of the cointegration test based on the test method related to ARDL. There were two models based on the number of dependent variables. As a result, all variables were found to be cointegrated. The F-statistic for Model 2 was above the upper limit at the 5% significance level. The Model 1 F-statistic exceeded the upper bound only at the 1% significance level. Therefore, the null hypothesis of no cointegration was rejected for two models.

Table 4: ARDL Bounds Tests

Model-1					*Model-2*				
F-Stat.	*K*	*Critical Value*	*I(0)*	*I(1)*	*F-Stat.*	*K*	*Critical Value*	*I(0)*	*I(1)*
4.42	4	10%	2.45	3.52	4.349	4	10%	2.45	3.52
		5%	2.86	4.01			5%	2.86	4.01
		1%	3.74	5.06			1%	3.74	5.06

Source: Author's Computation using Eviews10, (2022).

4.2. Effect of Banking lending on Sectoral Performance in Nigeria

This section will examine the effect of bank lending on sectoral performance in Nigeria with a focus on agricultural and manufacturing performance.

4.2.1. Effect of Banking lending on Agricultural Performance in Nigeria

This analysis will concentrate on the evaluating the effect of bank lending on agricultural performance in Nigeria looking at the both the short and long run estimates respectively.

4.2.2. Long and Short Run Estimates

From table 5 below, the coefficients of commercial bank lending to agricultural sector, gross capital formation and human capital development are positive indicating that they have a positive relationship with manufacturing performance in Nigeria in the long run. Specifically, an increase in gross fixed capital formation and human capital development by 1 percent will stimulate manufacturing performance in Nigeria by approximately 3.8 percent and 0.8 percent respectively. This result complies with theoretical expectations as well as empirical findings which posit that capital and technology are important drivers of long-run performance. Summarily, the long run results show that human development, gross fixed capital formation and gross capital formation all influence long-run manufacturing performance in Nigeria. This result is line with the extant findings of (Sadaf et al, 2019; Chi et al, 2020; Bahsi and Cetin, 2020; Anhetal, 2020 and Adesol and Ewa, 2020).

Table 5: Long and Short Run ARDL Estimates

Variable	*Coefficient*	*Std. Error*	*t-Statistic*	*Prob.*
Short Run Coefficient				
D(LOGCBLA)	0.017	0.119	0.142	0.894
D(LOGCBLA(-1)	0.181	0.110	1.647	0.175
D(LOGGCF)	-0.012	0.298	-0.041	0.970
D(LOGGCF(-1)	-0.559	0.380	-1.472	0.215
D(LOGHUM)	3.973	2.659	1.494	0.210
D(LOGHUM(1)	3.298	4.283	0.770	0.484
D(LOGGEXP)	-0.020	0.083	-0.241	0.821
D(LOGGEXP(-1)	-0.288**	0.107	-2.699	0.054
CointEq(-1)	-1.14**	0.330	-3.457	0.026
Long Run Coefficient				
LOGCBLA	0.496	3.734	0.133	0.899
LOGGCF	0.792	5.500	0.144	0.890
LOGHUM	3.806	33.135	0.115	0.912
LOGGEXP	-0.499	3.097	-0.161	0.877

Source: Author's computation.

4.3. Effect of Banking lending on Manufacturing Performance in Nigeria

Table 6 presents the short and long-run result of the estimated ARDL model. As is the case in the short run model, a significant negative relationship exists between gross capital formation and government expenditure in Nigeria in the long run such that manufacturing performance will plummet by approximately 1.1 percent

if government expenditure by 1 percent. This shows that degree of responsiveness of manufacturing performance in Nigeria. As shown in table 6, the long run results show commercial bank lending to manufacturing sector and human capital development has a positive but statistically insignificant effect on manufacturing performance such that a 1% increase in human capital development increases by 3%. Overall manufacturing performance. The new empirical findings are consistent with the study of Chi et al (2020) investigated the long-term causal relationship between banking sector development and agricultural productivity in the CEMAC countries from 1990 to 2018. The long-run results also show that a 1% increase in commercial bank lending to manufacturing sector increases total manufacturing output by 0.3%, as commercial bank lending to manufacturing sector is positive and statistically insignificant. This means that in the long run, commercial bank lending to manufacturing sector contributes to manufacturing total productivity. This finding is in tandem with the findings of extant studies of (Bahsi and Cetin, 2020; Anhetal, 2020; Adesol and Ewa, 2020 and Pusra, et al, 2021). On the other hand, government expenditure and gross capital formation are negatively related and insignificant to manufacturing performance in Nigeria.

Table 6: Long and Short Run ARDL Estimates

Variable	*Coefficient*	*Std. Error*	*t-Statistic*	*Prob.*
D(LOGCBLM)	0.120	0.098	1.225	0.236
D(LOGCBLM(-1))	0.027	0.086	0.309	0.761
D(LOGCBLM(-2))	-0.079	0.099	-0.799	0.435
D(LOGHUM)	0.749	2.009	0.373	0.714
D(LOGHUM(-1))	2.079	2.162	0.962	0.349
D(LOGHUM(-2))	-20.849	4.812	-4.332	0.000
D(LOGGCF)	-0.327	0.104	-3.145	0.006
D(LOGGCF(-1))	0.213	0.113	1.878	0.077
D(LOGGCF(-2))	-0.009	0.113	-0.083	0.935
D(LOGGEXP)	-0.020	0.040	-0.488	0.632
D(LOGGEXP(-1))	0.046	0.039	1.196	0.247
D(LOGGEXP(-2))	0.039	0.037	1.057	0.304
CointEq(-1)*	-0.329	0.064	-5.156	0.000
Long Run Coefficient				
LOGCBLM	0.332	0.504	0.658	0.519
LOGHUM	3.096	6.814	0.454	0.655
LOGGCF	-0.749	0.628	-1.194	0.248
LOGGEXP	-0.108	0.209	-0.514	0.614

Source: Author's computation.

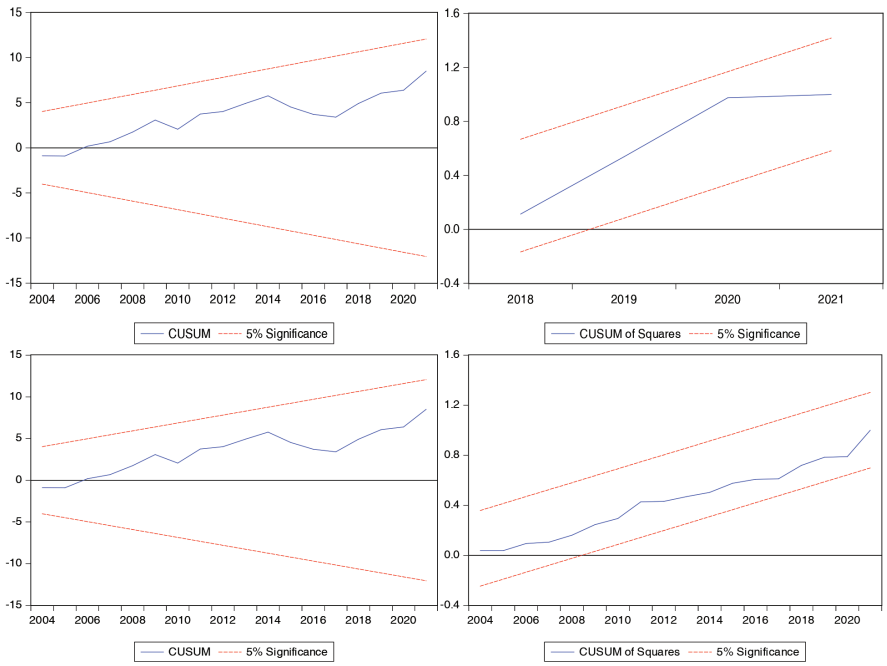
Diagnostic Tests

In the diagnostic results in Table 7, there is no evidence of serial correlation as measured by serial correlation test. This suggests that each observation is made independently of the others. The normality behavior of the estimated residuals was tested using the Jacques Berra normality test. As the null hypothesis could not be rejected, it was confirmed that the residuals of all two models were normally distributed According to this supposition, the model adequately accounts for the primary trends and sources of variation in the data, and the mistakes are random and independent. Heteroscedasticity of the model is investigated with the ARCH test. The results of the ARCH test also confirm that the model does not have heteroscedasticity issues implying that the results of the models is reliable.

Table 7: ARDL Diagnostic Tests

Model-1			*Model-2*	
Test Statistic	*F-Stat.*	*P-Value*	*F-Stat.*	*P-Value*
Jarque Bera-normality test	0.857	0.237	0.489	0.783
Ramsey RESET Test	0.772	0.475	1.285	0.225
Serial Correlation	5.233	0.16	1.33	0.347
Heteroscedasticity	1.343	0.431	1.301	0.29

Source: Author's computation.



5. CONCLUSION AND POLICY RECOMMENDATIONS

The research concludes that bank lending affects sectoral performance in Nigeria both in short and long term. Agricultural production had a positive and significant short- and long-term impact on the sectoral productivity. However, it can be seen that there is no long-run link amongst the explanatory and dependent variable because the performance of manufacturing industries is only short-term.

(i) The following recommendations are made;

(ii) Effective commercial bank lending to manufacturing and agricultural sector policies should be implemented, with a focus to have a beneficial long-term influence on Nigeria's sectoral performance

(iii) To increase Nigeria's total productivity and sectorial output levels, it is imperative to enhance the efficacy of commercial bank lending in the financial sector.

(iv) Human capital development should be highly encouraged to boost agricultural and manufacturing output growth in the Nigerian economy.

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