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Commercial Bank Financing and Agricultural Sector Output in Nigeria (1980-2014)

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Abstract

This research work examined the Effect of Commercial Banks Financing and Agricultural sector output in Nigeria for a period of 34 years (1981-2014). Its focus is to describe the trend of Real Agricultural Domestic Product (RAGDP) and Commercial Bank Loans to Agricultural Sector (CBLA); determine the effect of commercial banks financing and agricultural sector output in Nigeria as well as make policy recommendations based on research findings.

Secondary data were sourced from Central Bank Statistical Bulletin of various years. The Ordinary Lease square technique was used in this research to estimate the effect of commercial banks financing on agricultural sector output. Augmented Dickey Fuller (ADF) test was conducted to determine the properties of the variables used in the study and also to test for stationarity of the variables. The independent variable is commercial bank loan to agriculture and the dependent variable is real agricultural gross domestic product.

The results of the unit root test shows that the variables were stationary at first difference.

The results of descript statistics show slight fluctuating trend in both RAGDP and CBLA. The regression results revealed that R^2 is 0.996415 or 99.6%. This implies that about 99.6 percent of the total variations in real agricultural gross domestic product is explained by the explanatory variable (commercial bank loans to agricultural sector). Thus, findings revealed that there is a positive relationship between commercial bank loan to agriculture and the real agricultural gross domestic product and this is in line with the *aprori* expectation of the study.

This means that a one percent increase in commercial bank loan to agricultural sector will increase real agricultural gross domestic product by 1.9 percent. The F-ratio of the model showed that model is statistically significant. Thus, we conclude that the commercial bank financing has significant impact on agricultural sector output in Nigeria. The study recommends that the commercial bank should increase loan facilities to the agricultural sector to sustain food production for the teeming population of Nigeria.

Keywords: Commercial Bank; Agricultural Sector; Real Gross Domestic Product and Nigeria.

1. Introduction

1.1 Background to Study

The history of agriculture is directly linked with the history of Nigeria for the fact that Nigeria is essentially an agrarian country. Agriculture is the largest sector in Nigerian economy, accounted for 22% of gross domestic product (GDP) and roughly 70% of employment (Sahel 2014). Since its inception, the banking system has been providing credit to the

Nigerian economy. In order to examine the role of bank credit to the economy, the aggregate bank credit to the economy is used to estimate its impact growth, which is proxied by gross domestic product.

The recognition of the role of credit facility to agricultural development prompted government to establish the Nigerian Agricultural Development Bank with its headquarters in Kaduna, Nigeria. The Bank gives loans directly to individual farmers, organizations and established institutions. Other credits are made available for agricultural development by commercial bank credit guidance directives and Federal Government .Agriculture Credit Guarantee Scheme. Government expenditure in a bid to avoid fund hampering and increase in production of agricultural products, various governments in Nigeria have spent fortunes in the area of agricultural sector. Thus, considerable priority was given to agriculture in all development plans launched in Nigeria.

Spencer (1977) noted that credit implies a promise by one party to pay another for money borrowed or goods and services received. Credit cannot be divorced from the banking sector as banks serve as a conduit for funds to be received in form of deposits from the surplus units of the economy and passed on to the deficit units who need funds for productive purposes. Banks are therefore debtors to the depositors of funds and creditors to the borrowers of funds. Bank credit is the borrowing capacity provided to an individual, government, firm or organization by the banking system in the form of loans. According to CBN (2003), the amount of loans and advances given by the banking sector to economic agents constitute bank credit. Bank credit is often accompanied with some collateral that helps to ensure the repayment of the loan in the event of default. Credit channels savings into productive investment thereby encouraging economic growth. Thus, the availability of credit allows the role of intermediation to be carried out, which is important for the growth of the economy. Onuk *et al*. (2009) observed that incidences of low income and poor agricultural productivity are interwoven. As such, the need for external fund for agricultural development is indispensable. It was in recognition of this credit need that the Federal Government of Nigeria and foreign agencies have, over the years, developed policy instruments aimed at making technical assistance and credit facilities available to farmers.

According to Onyebinama (2007), the transformation of smallholder agriculture in Nigeria from subsistence to market orientation requires the injection of more capital. This is agreeable because farmers need financial capital to acquire real capital (plant, machinery, implement, etc), working capital goods (seeds, cuttings, breeding stock, etc) and manufactured goods (fertilizer, pesticide, etc). Where capital accumulation is elusive, investors, and farmers alike, resort to credit (Jhingan. 2003; Lagerkvist and Olson. 2006). Small-scale farmers have impeded access to credit facilities (Mohammed 2009).

However, whichever the types of loans banks offer to individual and companies, the central purpose, is to encourage business development. For the Agricultural sector, the need cannot be overemphasized. This is because agriculture unarguably remains the mainstay of Nigeria's economy in terms of employment and food production. The growth of the agricultural sector can be expressed in terms of index of Agricultural production, productivity or its Gross Domestic Product.

In 2009, CBN in collaboration with federal ministry of agriculture and rural development (FMARD) established commercial agricultural credit scheme (CACS) to enhance the development of the agricultural sector by providing credit facilities at a single digit interest rate to farmers. Under CACS, N200 billion was earmarked for lending at 9% to the following agricultural value chains: production, processing, storage and inputs (CBN 2014).

Nigeria since independent to date has been aiming at economic development in relation to agricultural development. Unfortunately, due to some constraints such has been unattainable. Constraints such as oil boom couple with maladministration and mismanagement, corruption political instability and poorly developed institution.

1.2 Statement of Problem

Presently, Nigeria with her vast expanse of rich soil and human resources still suffer from hunger and starvation as a result of barely function of agricultural sector. The structure of the Nigerian economy is multi-sector in which the banks and the agricultural sectors have roles to play. Long before now, the relationship between the banking industry and the agricultural sector in Nigeria has been a contentious issue (Mathew, 2008).

Since independence in 1960 and the discovering of oil, the yields from this sector have been decreasing. This was due to lack of credit facilities and the neglect of the sector by the government who had found solace in oil. The oil boom of 1970s and 1980s led to fundamental structural changes in the pattern of production and consumption in the economy. It led to a shift in the pattern of investment in the construction and service sectors, high taste for the neglect of the agricultural and exports sectors. This is in turn, resulted in acute food shortages, high food prices and large population drift from the rural to urban sectors, thus, creating a class of people who consume but do not produce material good.

It is also to note that the greatest challenge facing Nigeria since independence is to produce enough food for her rapidly increasing population. After decades of organized research and extension, Nigerian agriculture remains archaic, largely dependent on traditional agricultural systems developed by trial and error over the years. It is now a known fact that such

traditional agricultural systems can no longer be sustained indefinitely if we are to achieve expected food security in the country which might not be un connected to the inherent and distortions in the agricultural financing.

1.3 Justification of the Study

The financial assistance given to the farmers by commercial bank is very important in agricultural development since farmers in Nigeria are into subsistence and with this aid, their productivity will be enhanced. Agriculture is the critical journey to vision 20:2020. For an economy that wants to be listed as a leading economy in the next decades, food security is important as it increases national productivity and it is equally important for job creation agriculture offers all of these possibilities when practice rightly and can be a major driver of economic growth and development of Nigeria.

In view of the above, research questions are: Is the commercial bank loan and agricultural sector trend increasing or decreasing? and, what is the impact of commercial bank loan to agricultural sector? Therefore, the specific objective of this study therefore are to: describe the trend of Real Agricultural Domestic Product (RAGDP) and Commercial Bank Loans to Agricultural Sector (CBLA); examine the impact of commercial bank loan to agricultural sector as well as proffer possible recommendation based on research findings with a view to improving agricultural sector output in Nigeria.

The hypothesis of the study however is that, Commercial Bank financing does not have any significant impact on the agricultural sector output in Nigeria.

2. Review of Related Literature

2.1 Empirical Review

Ogbanje *et. al.*, (2012), examined the effect of commercial bank loan on agricultural sector in Nigeria from 1981 to 2007. Findings revealed that commercial bank loans (N' million) to the agricultural sector increase substantially from ₦590.6 in the 1981 to ₦ 4.221.4 in 1990, a 614.76 percent increase. From 1991, the loan rose from N 5012.7 to N 146.504.5 in 2000. The ordinary least square method with lagged dependent variable revealed the commercial bank loan significantly and positively affected agricultural GDP at 0.01 level of probability.

Ibe (2013) aimed at evaluating the impact of commercial bank credit to agricultural sector under the agricultural guarantee scheme fund in Nigeria. The results revealed that agricultural credit guarantees scheme fund and government fund allocation to agricultural produced a significant positive relationship on agricultural productivity. While other variables produce negative effect. It recommended that famers should be encouraged to be applying for loans from the banks to enhance their agricultural activities and productivity.

Ibe (2014), examined the impact of banks' and public sector's financing activities on agricultural output in Nigeria. The paper looked at the Nigeria budgetary allocation to the agricultural sector between 1990 and 2007. The study discovered that the joint action of commercial banks' credit to the agricultural sector, government financial allocation to agriculture and agricultural products prices are significant factors that influenced agricultural production in Nigeria. The study recommended that Banks should be encouraged to assist agricultural sector and that Agricultural financing should be given paramount attention in policy formulation.

Adolphus and Peterside (2014), analyzed the role of banks in financing the agriculture and manufacturing sectors in Nigeria from 1981 – 2010. Data were generated from the Central Bank of Nigeria Statistical Bulletin (2010) and analyzed using both descriptive and inferential techniques. Two multiple regression models were estimated using the Software Package for social Sciences (SPSS). The results however, the contribution of the manufacturing sector to GDP increased by 40.08% as merchant bank lending to manufacturing increased by 100%. There is also a significantly inverse correlation between commercial bank lending and manufacturing contribution to GDP. The regression model R^2 shows that 23.04% of the variation in agricultural contribution to GDP is explained by an increase in bank lending to the sector. It also shows that 18.75% of the variation in manufacturing contribution to GDP is explained by a change in aggregate lending. The results, however, indicated that the role of banks in facilitating the contribution of the agriculture and manufacturing sectors to economic growth is still significantly limited. It is recommended that monetary policy should, therefore, emphasize mandatory sectoral allocation of credit with appropriate incentives to boost the flow of bank credit to these sectors.

Saeed *et. al.*, (2014), examined the impact of Zarai Taraqiati bank limited's credit to farmers on their agricultural productivity by using logit regression analysis. The study is based on primary source of data collected through field survey of Bahawalpur Tehsil. It is concluded that Household size, income of the household, education of the Tamers, agricultural credit, short term and long term loans have significant positive impact on agricultural yield per acre. The positive association between credit and agricultural productivity represents that credit enables the farmers to purchase high quality or high yield variety seeds, fertilizers and pesticides and agricultural yield increases because of timely and adequate inputs. The study suggests that the timely provision of appropriate amount of loan to farmers may be helpful for the enhancement of agricultural productivity of Pakistan.

Udih (2014) investigated banks credits and agricultural development: does it promote entrepreneurship performance? The paper used primary and secondary sources of data that were extracted from five (5) banks and ten (10) agricultural enterprises in Delta State. A simple random sampling technique through the lottery method was adopted to select the sample. The data were analysed using percentage, mean, and Standard Deviation and Pearson Product Moment correlation to test the hypotheses. The research findings include; the deregulation of bank credits (non-regulated bank interest rates) to agricultural entrepreneurs; adequate bank credits should be granted to small scale agricultural farmers to increase productivity; and then farms land should be used as collateral instead the usual banks loans security to promote entrepreneurship performance.

Adewole (2015), also examined the contributions of commercial banks in agricultural financing in Nigeria. It pointed out the roles of bank credit in agricultural development. The study discussed a number of challenges that affected the agricultural financing in Nigeria. This is with a view to shedding light on the relationship between banks and agricultural sector and to evaluate the extent of banks involvement in agricultural financing.

John (2015) examined the effect of Bank Credit on Agricultural Output in Nigeria using the Error Correction Mode (ECM). A yearly data (1970- 2013) obtained from the Central Bank of Nigeria was used for the analysis. The analysis showed that all the variables were integrated of order one 1(1) and long-run relationship existed among them. However, following the empirical findings in this study, it showed that, in the long-run bank credit and industrial output contributed a lot to agricultural output in Nigeria, while; only industrial output influenced agricultural output in the short-run.

3. Research Methodology

3.1 Area of the Study: Nigeria

Nigeria is the second largest economy in sub-Sahara after South Africa. It is the 10th largest producer of crude oil in the world at about 2.1 million bpd. Until the 1970's the Nigeria economy was based on agriculture and trading activities. Since then, it has become heavily dependent on earning from oil and these accounts for more than half of the government's revenue and over 90% of export earnings. However, it employs over two-third of the population and accounted for one-third of the gross domestic product (GDP).

Nigeria the most populous country in Africa, it situated on Gulf of Guinea in West Africa. Its neighbors are Benin, Niger, Cameroon and Chad. The lower courses of River Niger flows south through the western parts of the country in Gulf Guinea swamp and mangrove forests border the southern coast; inland are hardwood forests. With land area of 351,649sq mi (910.771 sq km) and total area of 356.667 sq km (923.768 sq km).

3.2 Sources of Data

The data used in this research was secondary data. They are time series that data obtained from various publications of Central Bank statistical bulletin and its spans the period 1980-2014. These should be supplemented with data from the financial economic review, journal and text books published to ensure that proper adequate data are presented in the analysis.

3.3 Method of Data Analysis

The method data analysis adopted was simple regression analysis (i.e Ordinary least square [OLS]) technique.

i) The parameter estimates obtained possess optimal properties of un-biasedness, minimum variance, linearity etc.
ii) It is BLUE (i.e. best linear unbiased estimator).
iii) The computational procedure of OLS is fairly simple as compared with other econometric techniques.
iv) OLS is an essential component of most other econometric techniques

3.4 Model Specification

3.4.1 Dependent Variable

Real Agricultural Gross Domestic Product (AGDP)- This is chosen as a dependent variable in the course of this study because it is used as an indicator for assessing the growth of agricultural output in the country.

3.4,2 Explanatory or Independent Variable

(a) Commercial bank credit advances to agricultural sector (CBCA). This is employed as an explanatory variable in the course of study to show the total loan advances from commercial banks to agricultural sector.

This could be implicitly expressed as:

$$\mathbf{RAGDP_t = f(CBLA_t)} \qquad \textbf{…….equation (1)}$$

Where:

Equation (1) is thus explicitly written as:

$$\mathbf{lnRAGDP_t{:}\beta o + \beta_l lnCBLA_t + U_t} \quad \text{.....equation (2)}$$

Where;

RAGDP = Real Agricultural Gross Domestic Product.

CBLA - Commercial Bank Loan to Agriculture (₦ 'billion)

βO = Constant term

βi = Coefficient of CBLA

U_t = Stochastic error term.

ln= Natural logarithm

t= 1980-2014

Based on *apriori* expectation, there should be a positive relationship between the CBLA and dependent variable (RAGDP).

4. Data Analysis and Interpretation

4.1 Results of Descriptive Statistics

Figure 4.1 : The Trend of RAGDP between 1981 to 2014

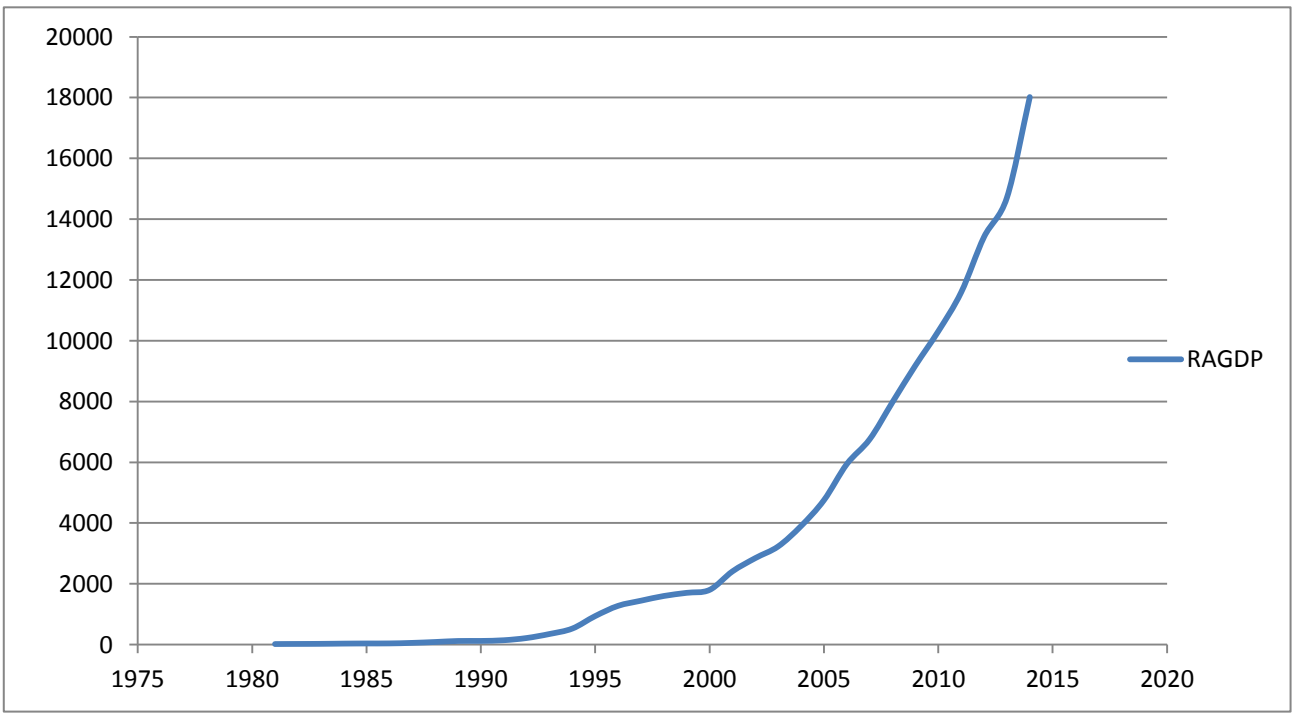
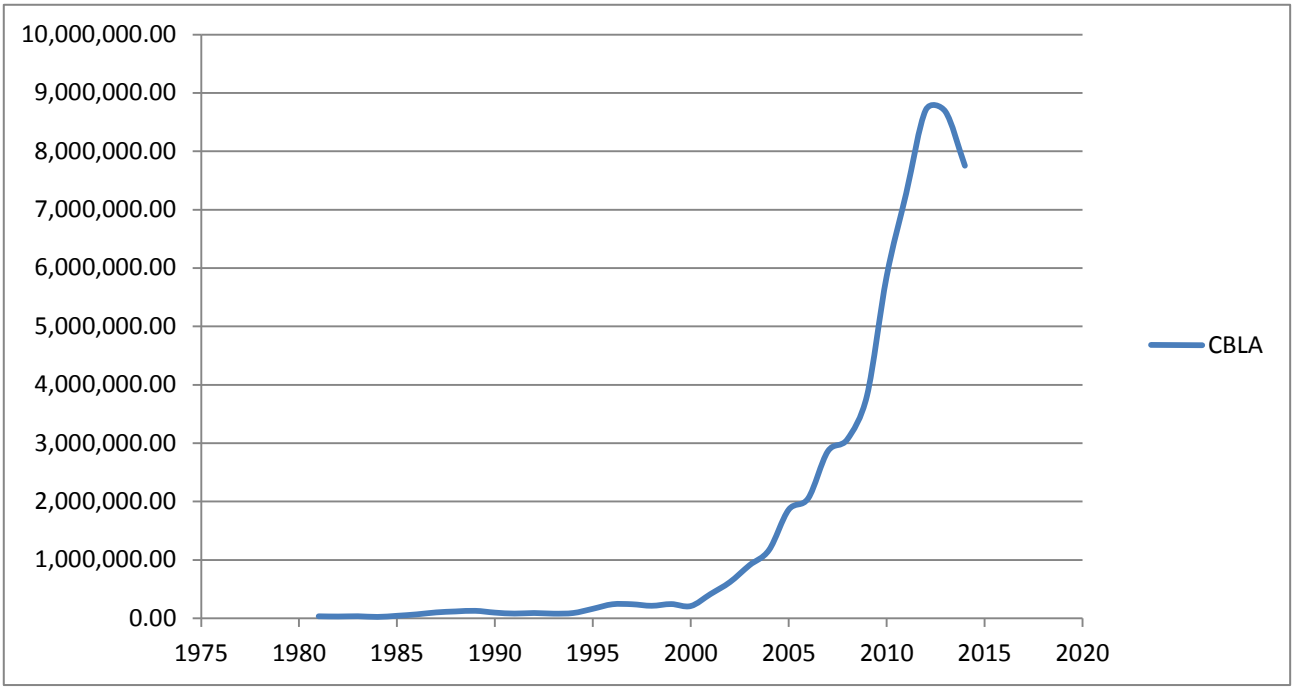


Figure 4.1 shows the trend of Real Agricultural Gross Domestic Product was very low around 1981 up to 1992 with a little rise in 1995. However, there was a sharp increase in 2000 which consequently continued to increase till 2014. The graph shows that the trends fluctuate over the years under review.

Figure 4.2: The Trend of CBLA between 1981 to 2014



The trend of Commercial banks loan to Agriculture was also very low in 19981 but with a steady and slowly increase around 1993. Later, there was a slight increase but subsequently decrease around 1999. In 2000, there was a sharp increase up to 2010, which later dropped considerably indicating a fluctuating trend in loans accruable to agricultural sector (Figure 4.2) .

4.2 Unit Root Test Result for Log of Real Agriculture Gross Domestic Product

The ADF test was used to test for the stationary of the variable at different levels of significance and test for integration of the variable in the model.

Table 4.1 Unit Root Test Result at First Difference

Variable	ADF statistic	1%	5%	10%
LnGRAGDP	-3.127395	-3.653730	-2.957110	-2.617434
LnCBLA	-4.512810	-3.653730	-2.957110	-2.617434
Source: Author's computation (2016).				

The unit root test results (table 4.2) show that at first difference the LOGRAGDP is statistically significant in absolute terms at 5% and 10% levels of significance. Also the results show that at first difference the LOGCBLA is statistically significant terms at both the 1%, 5% and 10% levels of significance.

Table 4.2 Regression Analysis of the Relationship between LnCBLA and LnGRAGDP				
Dependent variable: LOGRAGDP Method: Least squares Date: 05/15/16 time: 20:57 Sample (adjusted): 1982 2014 Included observations: 33 after adjustments				
Variable	**Coefficient**	**Std. Error**	**T-Statistic**	**Prob**
C	2.203889	0.123918	1.645356	0.1103
LOGCBLA	0.019804	0.035895	-0.552988	0.5844
LOGRAGDP (-1)	0.999007	0.030363	2.92085	0.0000
R-squared	0.996415	mean dependent var		2.962414
Adjusted R-squared	0.996176	S.D. dependent var		0.936707
S.E of regression	0.057922	Akaike info criterion		-2.772939
Sum squared reside	0.100648	Schwarz criterion		-2.636893
Log likehood	48.75350	Hannan-Quinn criter		-2.727164
F-statistic	4169.503	Durbin-Watson stat		1.066964
Prob(F-statistic	0.000000			
Source: Author computation (2016).				

4.2.1 Interpretation of Regression Results

The value of the intercept which is 0.203889, shows that the real agricultural sector output would be 0.203889 with commercial bank loan to agriculture when all other variables are held constant. From our analysis, there is a positive relationship between commercial bank loan to agriculture and the real agricultural gross domestic product and this is in line with the *apriori* expectation, the coefficient of commercial bank loan to agriculture is 0.019849 which implies that a one percent increase in commercial bank loan to agriculture will increase real agricultural gross domestic product by 1.98%. The t-statistics is -0.552988 and probability value of t-statistics is 0.5844. This implies though CBLA has a positive relationship but not significant.

4.2.2 Coefficient of Determination

The R^2 is equal to 0.996415 or 99.6%. This implies that about 99.6% of the total variation in real agricultural gross domestic product is explained by the explanatory variable (commercial bank loan to agriculture).

4.2.3 Durbin Watson statistics (DW)

The DW measures for the presence of autocorrelation in the model. The result shows that there exists a negative first order serial autocorrelation since DW statistics observed in the model is 1.066964

4.2.4 F-test

The F-value calculated is 4169.503 with a probability of 0.000000. This shows that it is statistically significant at 1% level.

5. Summary, Conclusion and Recommendation

5.1 Summary of Findings

The study focuses on the commercial banks financing and agricultural sector output in Nigeria. The study applied Augmented Dickey-Fuller technique to test the unit root property of the series.

The R^2 of 0.996415 or 99.6%. Implies that about 99.6% of the total variation in real agricultural gross domestic product is explained by the explanatory variable (commercial bank loan to agriculture). The result of the regression shows that there is a positive relationship between commercial bank loan to agriculture and the real agricultural gross domestic product. The coefficient of commercial bank loan to agriculture is 0.019849 which implies that a one percent increase in commercial bank loan to agriculture will increase real agricultural gross domestic product by 1.9%. The t-statistics is -0.552988 and probability value of T-statistics is 0.5844.

5.2 Conclusion

The study examined the effect of commercial banks financing and agricultural sector in Nigeria. The study concludes that there is a positive relationship between commercial bank loan to agriculture and the real agricultural gross domestic product. Moreo, the result shows that the model is statistically significant.

5.3 Recommendation

Based on the findings of the study, the following recommendations have been put forward:

Commercial banks should increase loan facilities to the agricultural sector to sustain food production for the teeming population of Nigeria; The loan should be targeted at small-scale farmers and marketers for more meaningful results; and Stakeholders in Nigerian agricultural sector should make conscious efforts towards sustainable increase in the value chain of agricultural output.

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