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Trend and Growth Rate Analysis of Commercial Bank Credit and Agricultural Output in Nigeria (1960 – 2013)

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Abstract

The study analyzed trend and growth rates of commercial bank credit and agricultural output in Nigeria from 1960 – 2013. Data collections were from Central Bank of Nigeria (CBN) annual report and statistical bulletins, National Bureau of Statistical (NBS), Federal Government of Nigeria (FGN) national account. Data were analysed using non-linear regression model (Curve estimation) and ordinary least square procedure in a time trend analysis. The exponential model stated that the expected growth in agricultural output was Y = -275.332 + 0.881x while growth for bank credit was Y = -433.473 + 0.963x for the period studied. The study showed that commercial bank credit exhibited negative trends in the periods considered. The coefficients of the trend variables were positive and highly significant at one percent for commercial bank credit which implies that time trend was an important determinant at one percent level of the aggregate level of commercial bank credit. There should be proper monitoring of fund allocated to agriculture to facilitate an effective utilization of such fund.

Keywords: *Trend, growth rates, bank credit, agricultural output, Nigeria.*

1.0. Introduction

Agriculture is the first and most thriving occupation of mankind. Agriculture in Nigeria is the most dominant sector and major source of livelihood for the majority of the population. Agriculture is the economic main stay of the household in Nigeria and is a significant sector in Nigeria's economy (Anyanwu, 2010; Udoh, 2005). The capacity of the agricultural sector to fulfill its traditional roles in Nigerian economy has been constrained by various social, economic and structural problem; such as,

unavailability of credits to local farmers, the civil war of the late 1960's, the severe drought of the early 1970s and 1980's, the discovery of oil (the oil boom of the 1970 created relative disincentives for agriculture in relation to other sectors of the economy), high interest rates on loans to farmers, rural- urban migration and ineffective institutions charged with policy implementations (Yusuf & Falusi, 2000) .

The growth trend of the contribution of the agricultural sector to the Gross Domestic Product (GDP) at 1990 constant basic price grew from 4.2 % in 2002 to 7.2 % in 2006 (Hashim, 2012). The advent of oil in the early 1970's made Nigeria highly dependent on oil revenue, with the performance of agricultural sector adversely affected over the years. Though the growth rate in the agricultural sector in Nigeria increased from an average of about 3 % in the 1990's to 7 % in mid-2000, the food security/sufficiency status of Nigeria continued to decline (Awotide & Akerele, 2010).

The role of credit in economic development has been recognised as credits are obtained by various economic agents to enable them meet operating expenses. Commercial bank credit contributes to economic development by enhancing production and productivity and thus higher income and better quality life for the people. Agricultural credit is the present and temporary transfer of purchasing power from a person who owns it to a person who wants it. Allow the later opportunity to command another person's capital for agricultural purposes but with confidence in his willingness and ability to repay at a specified time with or without interest (Nwaru, 2011). Credit may be financial or consists of goods and services.

Rapid and sustained output growth of the domestic economy of Nigeria has since the political independence in 1960 been of paramount importance to successive governments in the country. The decline in agriculture has for a long time been blamed on the neglect of the rural sector, comprising mainly of smallholdings farming families or households by successive administration in the country (Anyanwu, 2010). Also, the age of the farmer, farm size and the farmland tenancy have had their own share of the blame (Abolagba, Omokhafe and Aigbekaen, 2004). Consequently, governments have since implemented several national development plans and programmes aimed at boosting productivity, as well as diversifying the domestic economic base. The infrastructural and capital resources required for the attainment of these objectives have however been scarce. This has necessitated the intervention of commercial bank credit in the economy through the provision of the required huge capital outlay necessary for large-scale production in heavy industries

and for the provision of other credit facilities for the growth of the economy (Emmanuel, 2008).

In Nigeria, agricultural credit is an effective instrument for improving agricultural productivity and encouraging non-oil export and GDP stabilization (Emmanuel, 2008). (Musa *et al.,* 2012) noted that the banking sector helps to make credit available by mobilizing surplus fund from depositor who have no immediate needs of such money and channel it in form of credit to investors who have brilliant ideals on how to create additional wealth in the economy but lack the necessary capital to execute the ideals. The study further shows that the role of credit in an economy has been recognised as credit is obtained by economic agents to enable them meet operating expenses.

In realising the importance of credit to agriculture, government introduced a number of policies and programs aimed at utilizing government resource to drive agricultural growth and development.

With the recent move by the leading economies of the world to diversify their economy, Nigeria in a bid to joining the rest of the developed economies is conscious of the anger signals observed both within and outside the country that underscores the need to move away from total reliance on petroleum related revenues.

The objectives of the study are to:

1. Determine the growth rate in commercial bank credit and agricultural output.
2. Evaluate the growth rate in commercial bank credits to agriculture from 1960 to 2013.

2.0 Methodology

2.1 Study Area

The study was carried out in Nigeria as a whole in order to ascertain the extent commercial bank credit and agricultural output have increased within the specified period under study.

2.2 Method of data collection

Secondary data were used for the study and the data were obtained from Central Bank of Nigeria (CBN) annual reports and statistical bulletins ,National Bureau of Statistics (NBS), Federal government of Nigeria (FGN) national account, Federal office of statistics (FOS) annual abstract of statistics and digest of statistics and Food and Agricultural Organization (F.A.O) statistical year book.

2.3 Method of Data Analysis

The first objective was analysed using non-linear regression model (Curve Estimation). Curve estimation procedure allows you to quickly estimate regression statistics and produce related plots for different models such as linear, quadratic, exponential and growth etc. Curve Estimation is most appropriate when the relationship between the variable(s) is not necessarily linear.

The second objective which was on the growth rate in commercial bank credit was analysed using ordinary least square procedure in a time trend analysis. The growth rates were computed by using the function in time to the data following Onyenweaku & Okoye (2005), Okoye, Okoye, Asumugha, Dimelu, and Agbaeze,(2009) and Abubakar & Gani, (2013). The function can be specified as follows:

$$Q = b_0 + b_1 t \qquad (1)$$

Where:

Q = commercial bank credit.

b_0 = Intercept

b_1 = Slope (regression parameters estimated)

t = Time trend variable (years in number).

This measure has been proven to be more realistic in computing growth rates as it takes into account the entire observation. This equation (1) was fitted to the value of commercial bank credit for the periods 1960-2013.

3.0 Results and Discussion

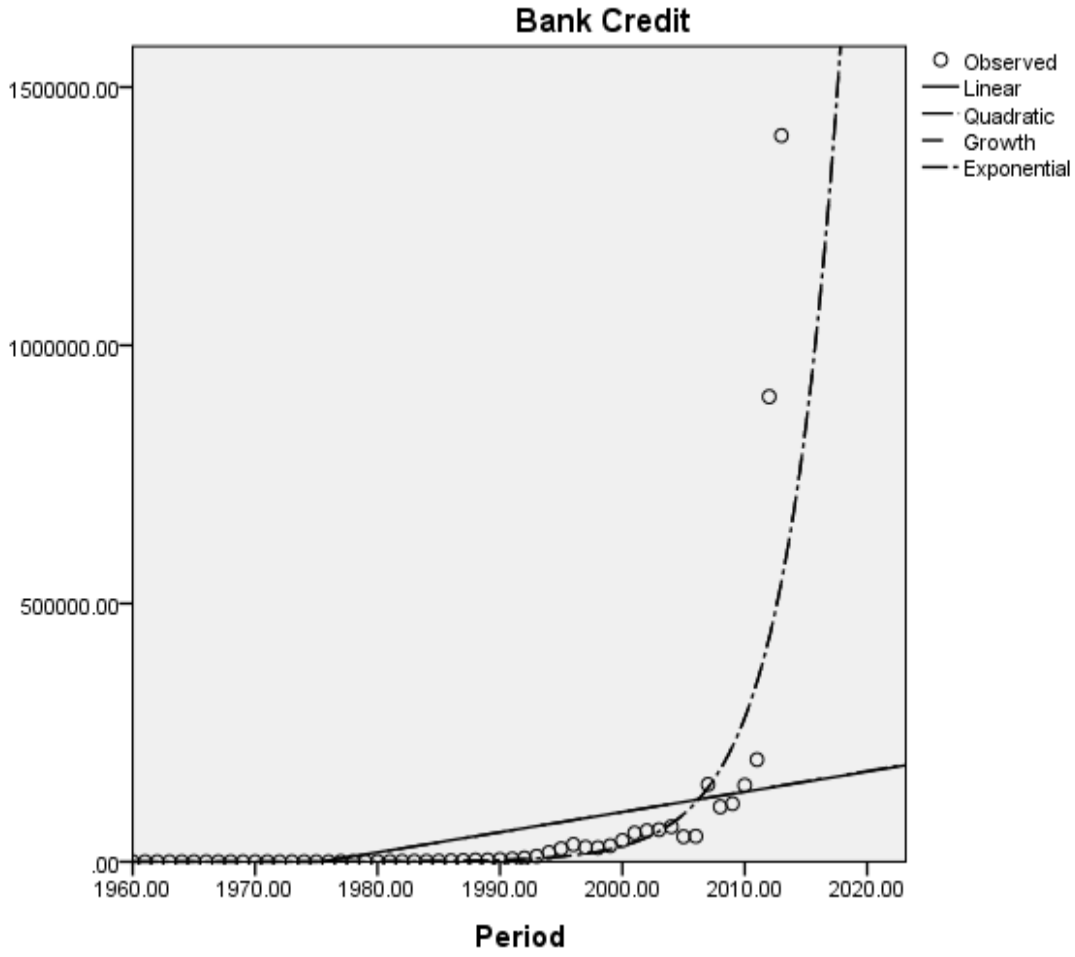

Fig. 1: Growth in Commercial Bank Credit (1960-2013)

From figure 1, the observed plot shows that commercial bank credit was stumpy from 1960 to 1994, but increased at decreasing rate from 1995 (₦25,278.7) to 2010 (₦14,799,570) million, and a sharp increase from 2011 to 2013. The fluctuation in credit can be attributed to inefficiency in allocation of funds to the real sector, lack of long-dated funding, decline in domestic credit by the banking sector to the private sector, high concentration of loans to few sectors and mismatch of liquidity in the Nigeria economy as note by Hashim (2012).

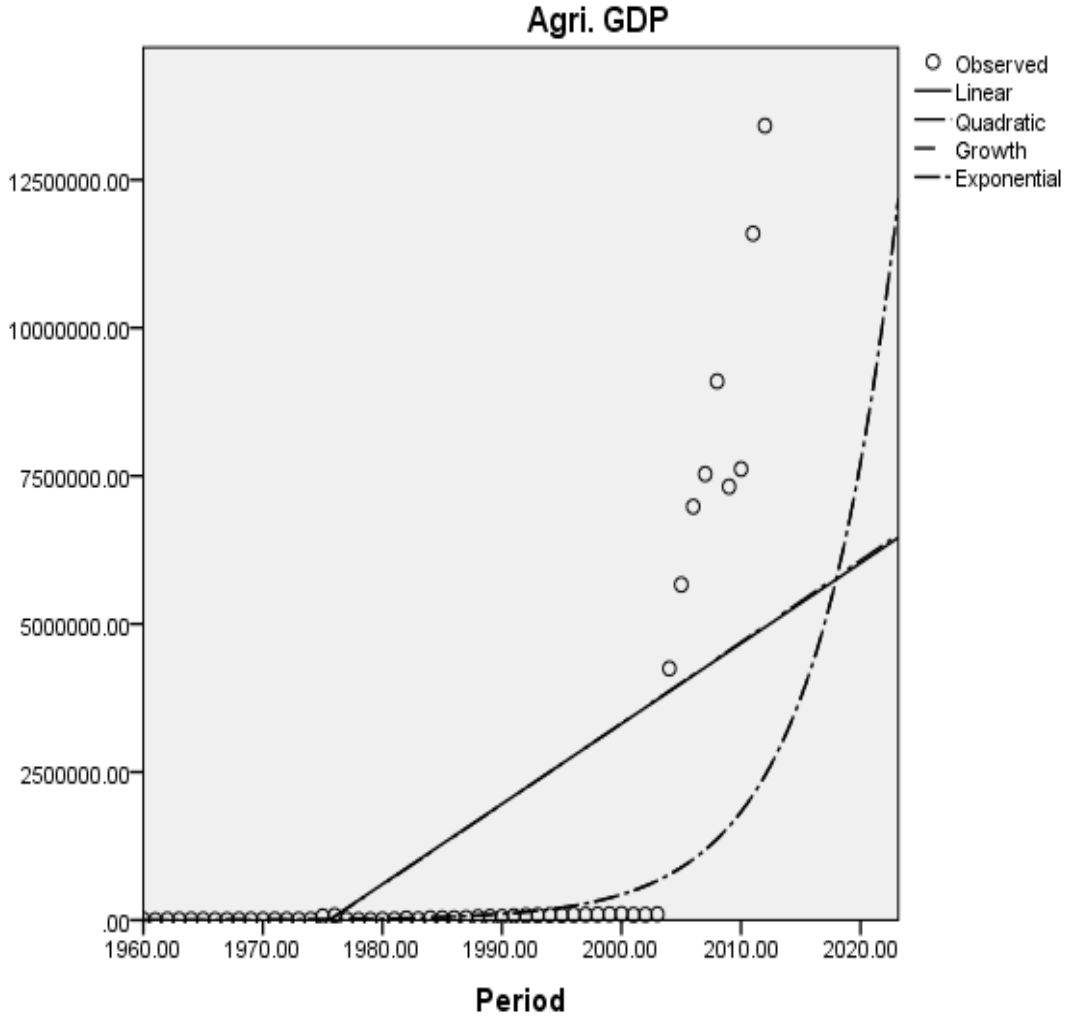

Fig. 2: Growth in Agricultural Output (1960-2013)

From figure 2 on the other hand, agricultural output started to increase tremendously from 1990.This period conceded with the period of sharp increase in fertilizer utilization in the early 1990's. The sharp increase in fertilizer utilization was sustained by subsidy which was sometimes as high as 75% of the total cost per bag (Nnanna *et al.,* 2003).This was complemented with the recent transformation agenda by the government from 2011 which also made a significant impact to the sector. The curve fit chart gives you a quick visual assessment of the fit of each model to the observed values. From this plot, it can be seen that the exponential and growth model follows the shape of the data in a better way than the other models.

Table 1: Summary of model estimate for growth rate in commercial bank credit.

	Model Summary			Parameter Estimate		
Equation	**r^2**	**F**	**Sig**	**Constant**	**B_0**	**B_1**
Exponential	0.927	650.068	0.000	1.000E-013	0.222	0.963
Quadratic	0.223	14.641	0.000	-3847897.851	0.000	0.986
Linear	0.222	14.522	0.000	-3847897.851	3904.328	0.471
Growth	0.927	650.068	0.000	-433.473	0.222	0.963

Source: Authors computation, data from CBN & NBS

Table 2: Summary of model estimate for growth rate in Agricultural Output

	Model Summary			Parameter Estimate		
Equation	**r^2**	**F**	**Sig**	**Constant**	**B_0**	**B_1**
Exponential	0.776	176.621	0.000	1.000E-013	0.144	0.881
Quadratic	0.411	35.638	0.000	-33648734.83	34.243	0.641
Linear	0.409		0.000	-267851750.636	135584.486	0.639
Growth	0.776	176.621	0.000	-275.332	0.144	0.881

Source: Authors computation, data from CBN & NBS

The Growth model states that the expected growth in agricultural output Y was -275.332+ 0.881x for the period 1960 to 2013. Also the expected growth for bank credit was - 433.473 + 0.963x. The b_1 value was less than 1 which suggests that much credit should be spent because it will make that investment back and more in output from the agricultural sector. The F and Sig. columns summarize the results of the F test of model fit. The significance value of the F statistic is 0.05 for both models, which means that the variation explained by each model is due to chance. The r square statistic is a better measure of the strength of relationship. The r square statistic is also a measure of the strength of association between the observed and model-predicted values of the dependent variable. The large r square values indicate strong relationships for both models. The r Square for the growth and exponential model is larger.

Table 3: Trend analysis and growth rate of banks credit to the agricultural sector

Variables	B_0	B_1	r^2	N	F-ratio
Commercial bank credit	-437.277 (-26.038)***		0.931***	54	700.951***
Time trend	0.224 (26.475)***	0.965	0.930***	54	

Source: computed from data: commercial bank credit 1960 to 2013
Note: *** implies significant at 1 % levels.

The result in Table 3 shows that the F-ratios for commercial bank credit were significant at one percent for agricultural sector (1960 - 2013) period. This implies that the estimated parameters in the model were most important in relation to the dependent variable. The value for r^2 which is 93.10 % indicated that the estimated parameters in the variable had good fits as it explained the amount of variation in the dependent variable that was determined by the independent variable in the model. The results further showed that commercial bank credit exhibited negative trends in the periods considered. The coefficients of the trend variables were positive and highly significant at one percent for commercial bank credit in the periods. This implies that time trend was an important determinant at one percent level of the aggregate level of commercial bank credit. The negative trend suggests that time trend was a minor factor in the disbursement of loan with a decreasing relationship between time and commercial bank credit. This may be largely due to credit markets are underdeveloped, inhibiting the effectiveness of monetary, credit and trade policies (Calvo & Frenkel, 1991); ever-increasing interest rates for agricultural lending which was believed among lenders to provide destabilizing effects but discouraged commercial banks from lending because of the discriminatory effect and low returns it generated in the financial sector (Hashim, 2012).

4.0 Conclusion

Commercial bank credit to agriculture has been inconsistent which has partly contributed to slow and inconsistent planning and policy implementation in spite of the sector being the main focus of every government administration. For consistency and better performance of planning, policy and programme implementation, Comprehensive Approach to Planning is recommended which embraces application of complete set of inputs with adequate credit as vehicle input

for transformation of the inputs and a feedback mechanism. The non-availability or inadequacy of any inputs will lead to inconsistent planning and policy formulation and implementation. The feedback mechanism provides information on output level which will serve as basis for re-enforcement at the input end. This framework has the capacity for consistent planning, policy and programme implementation if adopted.

There should be proper monitoring of fund allocated to agriculture to facilitate an effective utilization of such fund. The CBN should do more to encourage borrowing by bringing the lending rate to single digit. By this, so many people who wish to invest in agricultural production will not be running to other sectors.

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