AGRICULTURAL CREDIT, COCOA EXPORTS AND ECONOMIC GROWTH IN NIGERIA: AN EMPIRICAL PERSPECTIVE

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Abstract

The aim of this paper is to examine the nexus between agricultural credit, cocoa exports and economic growth in Nigeria. This study was motivated as a result of current advocacy in some quarters to diversify the Nigerian downstream sector towards the direction of agriculture, because revenues from exports of agricultural products had been the life wire of the Nigerian economy before the advent of oil and the oil boom. Against this backdrop this study utilized data from CBN Statistical Bulletin and FAOSTAT from 1990 to 2016, and the objective of the study was addressed within the framework of Cointegration, Dynamic Ordinary Least Square and Granger Causality techniques. Consequently, the findings that emerged from this study is as follows: the long-run impact shows that credit disbursed to cocoa production, and cocoa exports have a significant impact on Nigeria`s Gross Domestic Product. However, the exchange rate has an inverse, but an insignificant relationship with the country`s Gross Domestic Product in the long run. Consequently, there is neither a feedback effect between agricultural credit and economic growth nor cocoa exports. Therefore, due to the paramount findings that surfaced in this study, it is expedient for this paper to recommend that the Nigerian government should as a matter of fact see sustainable disbursement of agricultural credit to cocoa crop production as a viable catalyst that has the capacity to propel the expansion of the country`s GDP through cocoa exports. Also the policy makers in the country should embark on policy formulation and implementation that will revamp cocoa production through adequate and sustainable credit to cocoa farmers in

the country. In the same vein, aggressive exports of agricultural products could serve as a panacea to the current useless and valueless Naira in the global market.

Keywords: Agricultural Credit, Cocoa Exports, ACGSF, Economic Growth and Nigeria.
Jel Classification: Q14; O4

1. INTRODUCTION

Prior to the advent of oil boom of 1970s, agricultural sector was the life wire of the economy of Nigeria. Larger percentage of funds used for infrastructural projects in the country was realized from the proceeds of agricultural exports. Agricultural sector contributed to about 71% of Nigeria`s GDP with over 70% of the country`s population engaged in this sector of the economy. Similarly, agricultural products accounted for about 90% of foreign earnings accrued to Nigerian economy within the periods in question (CBN, 1970).

In fact, available evidence shows that during this period, Nigeria bagged the second largest cocoa producer in the globe and the largest producer and exporter of palm products in the global market simultaneously (UNIDO, 1992). The then western government under the premiership of late Chief Obafemi Awolowo used proceeds from cocoa exports to construct the first Tropical Africa`s Skyscraper, Cocoa House, then Western Nigerian Television (WNTV) first in Africa, which later metamorphosed into Nigerian Television Authority (NTA) in 1977 and former University of Ife, which was later changed to Obafemi Awolowo University, Ile Ife. This submission was reinforced by Nkang *et al*. (2009) who argued that cocoa export has been the only agricultural product that has generated highest foreign exchange in Nigeria.

However, the sudden oil boom of 1970s shifted the attention of the Nigerians and the Nigerian government away from the agricultural sector. From that period till now little or no serious effort is geared towards revamping the sector by the policy makers in the country. It is worth of note that the overdependence of the economy on oil sector alone has been more of a curse than a blessing in this country. For instance, the proposed oil price benchmark happened to be a significant loggerhead between the National Assembly and the Federal Executive which unnecessarily delayed the presentation of 2014 budget. This story has not changed even till November, 2018, when this paper was published. Meanwhile, the recent continuous dwindling in oil prices that visited the global oil market incapacitated over two third of states in Nigeria to pay workers` salaries in the past one year. Some of these states have little or no viable internally generated revenues that can sustain their states.

Consequently, it is worth of note that in expanding any sector of the economy for sustainable growth, the role of credit cannot be overemphasized. The paramount roles in which credit plays in agricultural investment project necessitated the move by the Central Bank of Nigeria to embark on various

agricultural credit schemes like N200 billion commercial agriculture credit scheme which was inaugurated in the late 2000s with a view to financing large projects that involve the value chain in agricultural sector. Also, in order to improve the lending attitude of commercial banks towards agricultural sub sector of the economy, the apex bank in the country set up Agricultural Credit Guarantee Scheme Fund (ACGSF) by providing a guarantee of 75% of all agricultural loans to commercial banks. Since 2005, the commercial banks have been the principal players in ensuring continuous growth of loans to the farmers with the disbursement of ₦48.6 billion in 2005, which exponentially rose to ₦1, 88 trillion in 2015, connoting an estimate of 3000 percent increment. (CBN, 2017).

Despite the fact that several credit schemes have been institutionalized to revamp the agricultural sector in Nigeria, its subsequent effects on cocoa exports in particular and economic growth in general has attracted little or no attention in the past studies. The focus of researches in some quarters was on possible determinants of aggregate cocoa productivity and its exports in the economy. Impact of credit on cocoa exports has been undermined in the recent time. See Oluyole and Sanusi (2009), Idowu *et al.* (2007), Olukunle (2013) and Taiwo (2016). It is constructive to state here that the literature has emphasized the important role in which exports play in deriving the productive capacity of developing economies in the last few years. The main motivating factor behind this study is the testing of the export-led growth (ELG) hypothesis from stand point of cocoa exports in Nigeria. However, it is pertinent to empirically investigate the aftermath effect of the National Intervention Scheme on cocoa export and economic growth so as to establish whether these schemes have the potential to ensure the sustainability or otherwise of cocoa export and economic growth on the long run basis. Therefore, this study would contribute to the existing studies in this regard.

2. REVIEW OF EMPIRICAL LITERATURE

This section presents the past empirical studies about agricultural credit, cocoa production/exports and economic growth in Nigeria.

Okojie *et al.* (2010) submits that the unavailability of bank accounts, properties to serve as collaterals, and knowledge about the way to access credit facilities from banks poise a limitation to non-commercial farmers and women dwelling in rural areas to have access to credit facilities from formal financial institutions in Nigeria.

Meanwhile, Ojo (2005) observes that about 85 percent shortfalls have been recorded by the trading bank credit to agriculture. The main shortfalls in the bank transactions were attributed to the inaccessibility of these credits by the target subsistent farmers not only due to the high bottlenecked procedure but also huge cost of service, which majority of the farmers could not meet. Therefore, the author

concludes that the agricultural credit institution has not fulfilled its founding goals and objectives.

Similarly, Ojo (1998) posits that one major problem affecting small scale enterprises alongside with agriculture is inadequacy of capital, despite the fact that the sector is the major occupation of people of Africa. Meanwhile, Philip *et al.* (2009) confirms that huge rate of interest and credit on short term basis alongside with the repayment of loans on fixed term is not a suitable credit package to annual cropping, and thus brings an impediment to credit access.

In their different surveys, Oyatoye (1981) and Balogun (1990) assert that credit is a deriving factor that is necessary for technological transfer in traditional agriculture and an important variable that has the capacity to develop the agricultural sector simultaneously in Nigerian economy. Ammaini (2012) investigates the link between agricultural production and formal credit supply in Nigeria. The finding of the paper proved that formal credit has an important impact in the production of crop, livestock and farming of fish. Consequently, Anyanwu (2004) argue in different paper that one of the major features associated with credit obtained from an informal source is higher rates of interest usually charged on them relative to the one obtained from a formal source.

However, Adejobi and Atobatele (2008) opine that the defaulting of loan could bring a limitation to accessibility of credit by farmers.

In another perspective, Adegbite (2009) observes that financial institutions in Nigeira usually give little or no substantial loans to farmers especially peasant farmers due to the exorbitant amount of money that would be expended on administration of such loans and the high rate of feasibility default among peasant farmers.

Moreover, Imoisi *et al.* (2012) conclude that there exists a significant relationship between deposit money banks loans and advances, and agricultural output in Nigeria while using annual data from 1970 to 2010 to examine the effects in which credit can exert on output of agriculture and production in the country.

While contributing to the literature, Agnet (2004) corroborates that the complexity of procedure and bureaucracy associated with commercial bank lending is not well comprehended by the majority of small scale and non-commercial farmers in Nigeria, as a result of this problem, their accessibilities to credits have been limited. Also, Alufohai (2006) states that the cooperative has been recognized as a better platform for rural farmers to access credit on a sustainable basis than the NGOs.

Furthermore, Okafor *et al.* (2016) adopt a vector autoregressive granger causality test to investigate the nature of nexus that exists among these variables namely, deposit money banks' credit and economic growth in Nigeria between 1981 and 2014. The authors conclude that one way feedback relationship runs from credit from the private sector to growth in the Nigerian economy.

Marshal *et al.* (2015) use Nigerian annual data from 1980 to 2013 to estimate the nexus between bank domestic credits and economic growth in the country. From the results that originated from the study it could be concluded that relative statistics of the estimated model established that CPS and CGS are positively and significantly correlated with GDP in the short run. But reverse was the case when examining the long run link that exists between indicators of domestic credit and the production capacity of the Nigerian economy.

However, Udoka and Duke (2016) analyze the nexus between credit disbursed by commercial banks and the Nigerian output on agriculture. The findings from that work indicated that there is an existence of a direct and significant relationship between credit in which the banks disbursed and the production on agriculture. Ditto for government expenditure on agriculture and agricultural production. Meanwhile, reverse was the case for interest rate and agricultural output in the economy.

In addition, Nnamocha and Eke (2015) adopt Error Correction Mode in examining how bank credit and output from Nigerian agricultural sector from 1970 to 2013 could be linked. The authors submitted that the credit disbursed by the bank and output from industries contributed a significant impact on the output of the agricultural sector on the long-run basis in the economy, whereas it was observed in the short run that only output from industries impacted agricultural productivity.

Finally, Onoja (2012) investigates the trends, pattern and determinants of the way financial institutions supply credit to agricultural sector in both pre- and post-financial reforms (1978 - 1985; and 1986 -2009). It could be established from the results obtained from the study that there was an existence of a sporadic increment in trend of credit disbursement to agricultural activities in the country immediately after the advent of the policy reformation. Similarly, the rate of interest, alongside with capitalization of the stock market and quantum of past disbursed credit by the banks had a crucial impact on the volume of credit from the formal sources allotted to the activities of agriculture during the period under consideration. Meanwhile, it was observed that a noticeable gap existed in credit supply in between the periods of pre-reform and post reform.

In conclusion, the list of above empirical studies lay emphasis on nexus between the disbursement of credit on agricultural activities and economic growth in Nigeria, but exports on cocoa has not been adequately and sufficiently researched which is a prominent gap this study would fill.

3. METHODOLOGY

In this paper secondary data from 1990 to 2016 would be utilized. Data on agricultural credit and GDP were extracted from a bulletin published by the Nigeria`s apex bank, known as CBN Statistical Bulletin. Meanwhile, data for

cocoa exports was sourced from FAOSTAT(2017). However, econometric technique was adopted to address the objective of the study.

3.1. MODEL SPECIFICATION

The specification of the model for the analysis in this study can be demonstrated below:

$$EcGrt = F \ (AgrCrt, \ CoExpt, \ ExcRate,) \qquad (I)$$

Model (I) can be linearized to form model as follows.

$$LnEcGrtt = \beta_1 + \beta_2 \ LAgrCrtt + \beta_3 \ LnCoExptt + \beta_4 \ ExcRatet + \varepsilon_t \qquad (II)$$

Consequently, in examining the long run equilibrium relationship among agricultural credit, cocoa exports and economic growth in Nigeria, the study employs Johansen and Juselius (1990). The results from the trace statistics and maximum eigenvalue statistics of this model would be used to evaluate the existence or otherwise of long run relationship between these variables.

3.2. DIRECTION OF FEEDBACK RELATIONSHIP BETWEEN AGRICULTURAL CREDIT, COCOA EXPORTS AND ECONOMIC GROWTH IN NIGERIA

To estimate the Granger causality between agricultural credit, cocoa exports and economic growth, this study adopted pairwise granger causality analysis. The model for this analy sis could be stated as thus:

$$EcGrt_t = \alpha_0 + \sum_{i=0}^{p} \alpha_1 EcGrt_{t-1} + \sum_{i=0}^{p} \alpha_2 AgrCrt_{t-1} + \sum_{i=0}^{p} \alpha_3 CoExpt_{t-1} + \varepsilon_{1t} \qquad (III)$$

$$AgrCrt_t = + \beta_0 + \sum_{i=0}^{p} \beta_1 AgrCrt_{t-1} + \sum_{i=0}^{p} \beta_2 EcGrt_{t-1} + \sum_{i=0}^{p} \beta_3 CoExpt_{t-1} + \varepsilon_{2t} \qquad (IV)$$

$$CoExpt_t = \gamma_0 + \sum_{i=0}^{p} \gamma_1 CoExpt_{t-1} + \sum_{i=0}^{p} \gamma_2 AgrCrt_{t-1} + \sum_{i=0}^{p} \gamma_3 EcGrt_{t-1} + \varepsilon_{3t} \qquad (V)$$

Where EcGrt denotes economic growth, which is proxied by GDP. AgrCrt means agricultural credit which is captured by Agricultural Credit Guarantee Scheme Fund (ACGSF) on cocoa crop. CoExpt connotes cocoa exports, ExtRate means exchange rate, ε_t is error term and t =1990-2015. The a priori expectations are as follows: $\beta2 \ and \ \beta3 > 0, \beta4 < 0$

3.3. PRESENTATION OF RESULTS AND DISCUSSION

Table 1. *Descriptive Statistics of Data Series (1990-2016)*

Descriptive Stat.	LNEcGrt	LNAgrCrt	LNCoExpt	ExcRate
Mean	8.100148	46047.71	3.250008	101.3211
Median	3.790013	2425.000	2.850008	120.9702

Maximum	2.200150	320450.0	6.600008	253.4923
Minimum	1.960013	220.3000	1.090008	8.037808
Std. Deviation	4.200149	87004.71	1.730008	66.66267
Skewness	0.902903	0.153464	0.597442	0.022722
Kurtosis	5.038460	6.422734	2.016898	2.213479
Jargue-Bera	654.5786	34.04783	2.693519	0.698266
Probability	0.000000	0.000000	0.260082	0.705299
Sum	2.200150	1243288.	8.770009	2735.669
Sum. Sq. Deviation	4.600300	1.970011	7.800017	115541.7
Observation	27	27	27	27

Source: Authors` Computation (2019)

3.4. DESCRIPTIVE STATISTICS OF DATA SERIES

In this work, attempt was made to examine various descriptive statistics of the dataset used for the analysis as shown in the above table. This provides useful information about the sample series such as the mean, median, minimum and maximum values. The mean value and median value of all the variables are far from each other except that of cocoa export. Also, the values of Kurtosis for the variables, cocoa export and exchange rate are not far from 3. This shows that the data are fairly distributed

Table 2. *Test for Unit Roots*

Variable	ADF Test			PP Test		
	Level	First Difference	Remarks	Level	First Difference	Remarks
LnEcGrt	2.981038**	-2.981038**	I (1)	2.981038**	-2.981038**	I (1)
LnAgrCrt	3.020686**	-3.029970**	I (1)	2.981038**	-2.986225**	I (1)
LnCoExpt	2.981038**	-2.986225**	I (1)	2.981038**	-2.986225**	I (1)
ExcRate	2.981038**	-2.986225**	I(1)	2.981038**	-2.981038**	I(1)

Source: Authors` Computation (2019)   ** %5 level

In order to validate the existence or otherwise of stationarity of time series data of the variables, it is expedient that the data were subjected to a unit root test with the techniques of the standard Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) tests. The findings from the various tests as reported in table 2 indicate that data on real GDP, cocoa credit, cocoa exports, and exchange rate were stationary after first differencing. This established that the variables under consideration for this analysis possess a unit root.

Table 3. *Test for Cointegration (Johansen Cointegration Test Trace Statistics &Maximum Eigenvalue)*

H0	Eigenvalue	Trace Statistics	P-value	Eigenvalue	Maximum Eigenvalue	P-value
r=0	0.375637	18.99039	0.4936	0.375637	11.77559	0.5700
r≤1	0.232949	7.214806	0.5528	0.232949	6.630052	0.5338
r≤2	0.023119	0.584754	0.4445	0.023119	0.584754	0.4445

Source: Authors` Computation (2019)

From the tables above it is evident that the variables of interest real GDP, cocoa exports, cocoa credit and exchange rate are I (1), there is high tendency these variables possess a convergence in the long run. While examining the existence or otherwise of the long equilibrium relationship among these variable, a multivariate cointegration test was investigated with the methodology advanced by Johansen and Juselius (1990). The findings from the multivariate cointegration analysis in the above table show that at least two cointegrating vectors existed in the systems. From the trace statistics as it was observed, at least two cointegrating vectors existed in the model as well at a lag interval of 1 to 1. In the same vein, the maximal eigenvalue statistics above confirms the presence of at least two cointegrating vectors. Therefore, from the cointegration test, it could be concluded that the variables of interest in this study possess a long run equilibrium relationship with one another. However, this may likely show some adjustment to short run disequilibrium through via a channel. As a result of this, it is important that the dynamic ordinary least square (DOLS) would be estimated to examine the nature of convergence of credit on agriculture, cocoa exports and economic growth in the country.

Table 4. *The Impact of Cocoa Credit and Cocoa Exports on Economic Growth in Nigeria*
Regressand V: LnEcGrt
Method: Dynamic Least Squares (DOLS)

Regressors	Coefficient	t-value	Prob. Value
LnCoCrt	1.7143***	1.82	0.0639
LnCoExpt	5.0140**	2.22	0.0349
ExRate	-4.3147	0.78	0.4484
C	3.8149	0.98	0.3463
R-Squared	0.6425		
Adjusted R-Squared	0.6231		

*Source: Authors` Computation (2018) ***Significant at 10%, **Significant at 5%*

The table 4 above shows that Agricultural Credit Guarantee Scheme Fund (ACGSF) on cocoa crop possesses a direct relationship with economic growth which is significant at 10% level of significance. A unit change in Agricultural Credit Guarantee Scheme Fund (ACGSF) on cocoa crop brings about 1.7143 increment in the country`s gross domestic product. This implies that agricultural credit disbursed to cocoa production brings about economic growth in Nigeria. Finding in this work corroborates with the assertion of Marshal et al (2015) despite the adoption of different methodology. Similarly, Cocoa exports have a positive impact on the growth of the economy`s GDP. This result is statistically significant at 5% level of significance. A unit change in cocoa exports causes 5.0140 increment in economic growth in the country. This implies that cocoa exports contribute to economic growth in the country. This finding confirms the proposition of Taiwo (2016), in spite of the fact that the author employed different technique. However, exchange rate shows an inverse relationship with economic growth. This attests to the useless value of the Nigerian currency in the past few decades in the global market. A unit change in exchange rate leads to 4.31%

reduction in the Nigerian gross domestic product. However, the result is not significant at 5% level of significance.

Consequently, cocoa exports, cocoa credit and exchange rate which happened to be the explanatory/ independent variables in the model for this work, jointly explained about 64% of the variations in economic growth which was adopted as dependent variable in this paper. But 46% is left unexplained owing to random chance. This means that the model is comparatively good for the analysis. Whereas, the explanatory power reduced to 62% as a result of adjustment in the degree of freedom in the estimation of the model.

Table 5. Feedback Relationship between Variables of Interest (Pairwise Granger Causality Test)

Sample: 1990 – 2016
Lags: 2

H0:	Obsv	F.Stat.	P-value
COCOAEXPT does not have a feedback relationship with RGDP	25	0.49859	0.6147
RGDP has a feedback relationship with COCOAEXPT		0.21552	0.8080
EXCHRATE does not have a feedback relationship RGDP	25	1.20511	0.3205
RGDP has a feedback relationship with EXCHRATE		11.3015	0.0005
COCO_CREDIT does not a feedback relationship with RGDP	25	0.16142	0.8520
RGDP has a feedback relationship with COCO_CREDIT		0.02296	0.9773
EXCHRATE does not have a feedback relationship with COCOAEXPT	25	1.52081	0.2428
COCOAEXPT has a feedback relationship with Cause EXCHRATE		0.33184	0.7215
COCO_CREDIT does not Granger Cause COCOAEXPT	25	5.21395	0.0151
COCOAEXPT does not Granger Cause COCO_CREDIT		0.06049	0.9415
COCO_CREDIT does not Granger Cause EXCHRATE	25	5.12805	0.0159
EXCHRATE does not Granger Cause COCO_CREDIT		0.78486	0.4697

Source: Authors` Computation (2019)

This section examines the direction of causality among cocoa credit, cocoa exports, exchange rate and economic growth and the Nigerian economic growth within the context of pairwise granger causality technique. It could be validated from the above table that one way feedback relationship which runs from cocoa credit to cocoa exports in the Nigerian economy. This implies that agricultural credit scheme disbursed to cocoa crop production is a motivating factor that is deriving the cocoa exports in Nigeria. Similarly, there is a one way feedback relationship which runs from cocoa credit to exchange rate. GDP granger causes

exchange rate. However, there is no feedback effect between growth of the economy and cocoa exports. Also, there is no feedback effect between cocoa credit and gross domestic product in Nigeria. This implies that cocoa credit and cocoa lack the propensity to propel economic growth in Nigeria.

4. CONCLUSION AND RECOMMENDATIONS

In this paper an attempt has been made to research the sustainability of the Nigerian economic growth through agricultural credit and cocoa exports over the period of 1990 to 2016. The summary of the important findings in this study could be enunciated as follows. The long-run impact shows that credit disbursed to cocoa production and cocoa exports have a significant direct link with the Nigerian economic growth. However, the exchange rate in Nigeria has a negative relationship with economic growth. Consequently, there is a unidirectional feedback effect exchange rate and cocoa credit in Nigeria. Meanwhile, there is neither a causal effect between credit disbursed to agriculture and growth of GDP nor exports of cocoa and GDP as well.

Furthermore, due to paramount findings that surfaced in this study, it is expedient for this paper to recommend that the Nigerian government should as a matter of fact see Agricultural Credit Guarantee Scheme Fund (ACGSF) on cocoa crop as viable catalyst that has the capacity to propel the expansion of the country`s GDP through cocoa exports. Also the policy makers in the country should embark on policy formulation and implementation that will revamp cocoa production through adequate and sustainable credit to cocoa farmers in the country. In the same vein, aggressive exports of agricultural products could serve as a panacea to the current useless and valueless Naira in the global market.

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