Journal of Economics and Management Sciences: Volume 5, No. 2; 2020
ISSN: 2550-732X
Published by Department of Economics, Federal University of Lafia, Nasarawa State, Nigeria

Empirical Analysis of the Correlation between Exchange Rate Deregulation and Agricultural Contribution to the Gross Domestic Product in Nigeria

Stanley C. Udegule[1], Abraham Agbokhase[1] & Adeneye O. Adeleke[1]
[1]Admiralty University of Nigeria
Corresponding Email: stanchiley2003@yahoo.co.uk

Abstract
Over the years, the role of exchange rate on the Nigerian Gross Domestic Product (GDP), specifically agricultural produce has been an issue. This paper investigated the correlation between exchange rate deregulation and the agricultural contribution to GDP in Nigeria. The research work employed econometric tools, using time series data covering a period of eighteen (18) years (2000 – 2018). The Augmented Dickey Fuller test, the Autoregressive Distributed Lag (ARDL, and the Error Correction model (ECM) were utilized to estimate the data obtained from the Central Bank of Nigeria (CBN) annual statistical bulletin. The results obtained from the study showed that a negative relationship exist between Exchange Rate (EXR) and the Agricultural Share of Gross Domestic Product (AGDP). The implication of the above result is that, a floating exchange rate policy over the years has been having economically not-friendly trend in agricultural share of the GDP in Nigeria. The study, therefore, recommended that, government should introduce policies like: price ceiling and quantity quota to limit the exchange rate volatility, and encourage export-oriented policies that will help to strengthen the naira against the dollar.
Keyword: Exchange Rate Deregulation, Agriculture, Correlation and Nigeria

1.0. Introduction

The role of Agriculture in transforming both the social and economic framework of the Nigeria economy cannot be overlooked. It is a source of food to mankind and raw materials for the industrial sector. It is also essential for expansion of employment opportunity, speeding up industrialization and easing the pressure on the Balance of Payments (BoP) (Anyanwu, 2007). In spite of the importance of agriculture in national development, its contribution to Gross Domestic Product (GDP) has been issue over the years in Nigeria (Oyakhilomen, 2017). In his assertion, Anyanwu, 2007, noted that, the nation's current production of 1.36 per cent, if not increased to meet the growing population rate, the country will face a drastic national hunger that will increase importation of agricultural produce instead of export. As a control measure and to improve local production, several policy reforms were initiated by different governments, and one of such was the Structural Adjustment Programme (SAP) that was launched in 1986 by the Ibrahim Babaginda's administration (Yesufu, 1991).

The Structural Adjustment Programme (SAP) was an economic package designed to rapidly and effectively transform the Nigerian economy to a more sustainable path and eradicate excessive dependent by the nation on imports, especially consumer goods. To achieve the above objective, the Structural Adjustment Programme (SAP) embraced exchange rate deregulation by allowing the market forces of demand and supply to determine the price of goods and services, as well allocate resources in the economy (Olaniyan, 2017).

Consequently, imports of various competing food items and other industrial raw materials increased as a result of over-valuation of the exchange rate before deregulation. Massive importation drastically affected our local production of similar goods hitherto exported (Enoma, 2016). The resultant effect of the above was the abolition of the fixed exchange rate regime and the introduction of floating exchange rate regime via the adoption of the Dutch Auction System vis-à-vis the second-tier foreign exchange market. A major effect of the floating exchange rate policy was the removal of the over-valuation problem to the point of making the naira to be under-valued. According to Killick, 2016, introduction of flexible exchange policy aimed at accelerating exports by making Nigerian goods relatively cheaper.

However, over the years, there has been varying opinions among academic scholars regarding the impact of exchange rate variation on economic variables, especially in Nigeria. The traditional economists, however, are of the opinion that fluctuations in exchange rates affect relative local and foreign prices, making expenditure between local goods and international goods to be on the high side (Obstfeld, 2002). The Central Bank of Nigeria (2019), noted that, since the inception of the exchange rate deregulation in Nigeria, there have been fluctuations in the value of the naira, thereby, making it difficult to ascertain sectoral contribution to the GDP, specifically the agricultural sector. For instance, in 1999, ₦92.3k was exchanged for $1. In 2010, ₦150.3k was valued for one US dollar, and in 2019, ₦306.9k was exchanged for $1, respectively, depreciating at an annual rate of 0.18%.

Similarly, the Central bank of Nigeria, 2019, equally noted that the agricultural share of the GDP in 1999 was 26.03%. In 2010, it decreased to 23.83%, and further decreased to 20.63% in 2015, and 21.01% in 20-19, respectively. It is on this note that, several research works have been conducted to address this dismay movement on the Nigerian non-oil trend (agriculture). However, there exists a shortfall of empirical information on the correlation between exchange rate deregulation and the agricultural share of GDP in Nigeria. It is against this backdrop that this study was conducted with the specific objective of bridging the gap in research by providing information on the causal relationship between exchange rate deregulation and agricultural share of Gross Domestic Product (GDP).

2.0. Literature Review

Several empirical research works have been done on exchange rate deregulation and agricultural share of GDP in Nigeria. Babatunde (2018) investigated the relationship between exchange rate and agricultural share of GDP in Nigeria, between 1990 and 2019, using the Johansen cointegration technique and vector error correction method. The study revealed a long-run relationship between exchange rate and agricultural share of gross domestic product. However, the study did not explicitly show the effect of depreciation of the Naira on the non-oil trade (agriculture) and exchange rate in the reported year.

In a like manner, Omojimite (2012), in a study on institutions, Macroeconomic policy and growth of Agricultural sector in Nigeria noted that exchange rate was negative and significant in influencing agricultural production in the country. Also reviewed was

Alao (2017), in a study on interest rate determination in Nigeria, maintained that exchange rate adjustment was positive and significant in influencing interest rate, that is, interest rate affects agricultural production in Nigeria.

Amassoma (2019) estimated the relationship between expenditure, private investment and agricultural output in Nigeria, over the period of 1990 and 2018. The bounds test and Autoregressive Distributed Lag (ARDL) modeling approach was used to analyze both short and long-run impact of public expenditure on agricultural output growth i8n Nigeria. Result of the ECM showed that increase in public expenditure has a positive influence on the growth of agricultural output. The study however only analyzed data obtained between 1990 and 2011, without capturing data covering the entire scope of the study, hence it will be difficult to ascertain the validity of the findings claimed.

Okpara (2019) analyzed the nexus between exchange rate and GDP, using quarterly data spanning over 1980 to 2000. He applied time series test on the data used. The result shows that inflation affects volatility on its own rate as well as the exchange rate. The study was faulted for not capturing the extent of volatility and the effect of 2016 and 2017 economic depression.

Olubanjo (2018) in a study and exchange rate deregulation and supply response of cocoa farmers in Nigeria, between 1980 to 2015, using the frame work of ECM, found out that the exchange rate is significant in explaining changes in output. However, the study was faulted because increased exchange rate signifies naira appreciation and hence represents price disincentive for local (cocoa) production for export.

3.0. Methodology

3.1. Description of Data and Sources

The data utilized in this study were time series data on exchange rate (i.e., Naira per US Dollar) and agricultural share of real GDP (in Naira), spanning the period of 2000 to 2018, in order to capture the structural changes that occurs in the AGDP in year 2000 and 2018, as well as the percentage change in exchange rate between year 2000 and 2018, respectively. Data for the study were obtained from the Central Bank of Nigeria (CBN) annual statistical bulletin (CBN, 2019), and the National Bureau of Statistics (2019).

3.2. Data Analysis Procedure

The Augmented Dickey Fuller (ADF) test, the Pairwise Granger casualty test and the Autoregressive Distributed Lag Model (ARDL) were used in this study. The Eviews econometrics package was used to estimate the data.

3.3 Model Specification

To investigate the correlation between exchange rate deregulation and agricultural share of gross domestic product in Nigeria, the Pairwise Granger Casualty test is modeled and adapted from the work of Jenrola et al (2017) as follows:

$$ExRt = \alpha o + \sum_{i=1}^{P} \alpha i\, ExRt_{-i} + \sum_{i=1}^{P} \omega j\, AGDPt_{-i} + \mathcal{E}1t \quad (1)$$

$$AGDPt = \beta o + \sum_{i=1}^{P} \beta i\, AGDPt_{=i} + \sum_{i=1}^{P} \varphi j\, EXRt_{-1} + \mathcal{E}2t \quad (2)$$

To estimate the short run relationship between the variables, the corresponding error correction equation was estimated as;

$$\Delta lnAGDPt = Co + \sum_{i=1}^{P} ci\, \Delta lnEXRt_{-1} + \psi ECMt_{-1} + \mathcal{E}3t \quad (3)$$

Where:

$AGDP$ = Agricultural share of Gross Domestic Product

$EXRt$= Exchange rate in year t (i.e., Naira per US Dollar)
$AGDPt$ = Agricultural share of real domestic product in year t.
$a0, \beta o, C0$ = constant terms in Models 3, 4, respectively $@j, Cj$ = estimated coefficient of exchange rate in models 1, 2 and 3 respectively
$wj, \beta 1$ = Estimated coefficient of agricultural share of real gross domestic product in model.
$\epsilon 1t, \epsilon 2t, \epsilon 3t$ = Gaussian white noise error terms in models 1, 2, and 3 respectively.
P =Optimal lag length
Δ = Difference operator
ECM = error correction term
Ln= Natural Logarithm

4.0 Results and Discussion

4.1 Descriptive Statistics of the Variable

Descriptive statistics was used in this study because of the nature of this study which involves descriptive survey. Descriptive statistics help to describe the basic features of the understudy data used as presented in table

Table 1: Descriptive Statistics of the variables used

	AGDP	EXR
Mean	24.56333	165.8810
Median	24.48000	148.9000
Maximum	36.97000	306.9000
Minimum	19.99000	92.30000
Std. Dev.	4.307783	67.75109
Skewness	1.495060	1.270630
Kurtosis	4.987261	3.234854
Jarque-Bera	11.27878	5.699018
Probability	0.003555	0.057873
Sum	515.8300	3483.500
Sum Sq. Dev.	371.1399	91804.19
Observations	21	21

Source: Researcher Computation using Eview 10

Table 1 presents the descriptive statistics which describes the characteristic of the data used in the study. The study observation is 21. The skewness which measures the degree of asymmetric of the series shows that all the variables understudy namely; Agricultural share of Gross Domestic Product (AGDP) and Exchange Rate (EXR) have positive sign that is long-right tail as well as normal skewness and platykurtosis, because all the values are within the range of 1 to 3 kurtosis of 3. Meanwhile, kurtosis greater than 3 is said to be leptokurtic. If the kurtosis exceeds 3, the distribution is peaked (leptokurtic) relative to the normal; if the kurtosis is less than 3, the distribution is flat (platykurtic) relative to the normal. The Jarque-Bera test statistic which measure the difference of the skewness and kurtosis of the series with those from the normal distribution show that all the variables understudy were all significant with the probability that a Jarque-Bera statistic exceeds (in absolute value) the observed value under the null hypothesis - a small probability value leads to the rejection of the null hypothesis of no normal distribution.

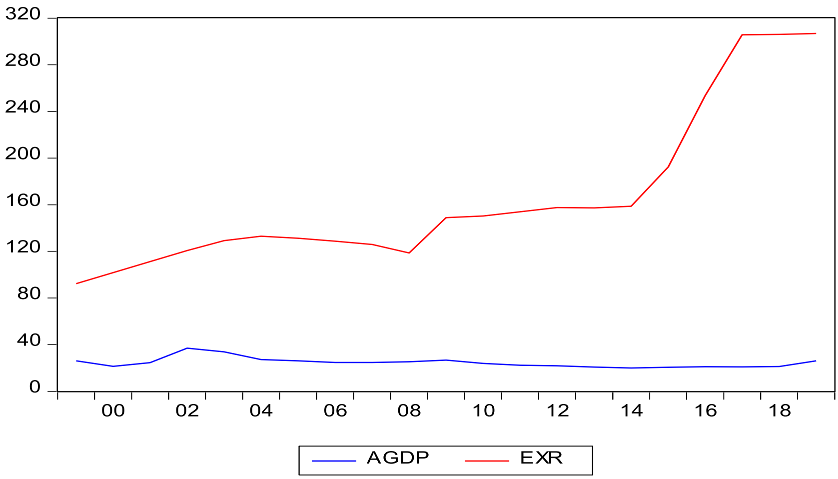

Figure 1: Single line graphical representation of variables used
Source: Researcher Computation using Eview 10

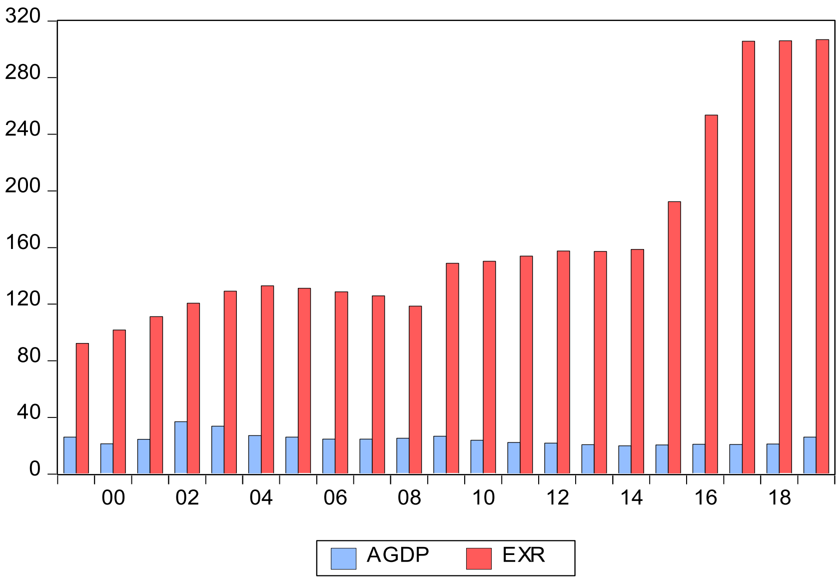

Figure 2: Trend of Analysis between AGDP and EXR, 2000 – 2018
Source: Researcher Computation using Eview 10

From the curves above, the AGDP and EXR fluctuated at various years. However, while AGDP was increasing and decreasing at less than one per cent between 2000 and 2018, EXR was increasing (never decreased) at more than two per cent between year 2000 and 2018. Notably, the increase was more pronounced in 2014 (253.5%) and 2019 (306.9%).

Table 2: Descriptive statistics of the variables used, showing Correlogram

<table>
<tr><th>Autocorrelation</th><th>Partial Correlation</th><th></th><th>AC</th><th>PAC</th><th>Q-Stat</th><th>Prob</th></tr>
<tr><td>. *| . |</td><td>. *| . |</td><td>1</td><td>-0.091</td><td>-0.091</td><td>0.1841</td><td>0.668</td></tr>
<tr><td>****| . |</td><td>****| . |</td><td>2</td><td>-0.496</td><td>-0.509</td><td>5.9609</td><td>0.051</td></tr>
<tr><td>. | . |</td><td>. *| . |</td><td>3</td><td>0.053</td><td>-0.083</td><td>6.0314</td><td>0.110</td></tr>
<tr><td>. | . |</td><td>.**| . |</td><td>4</td><td>0.057</td><td>-0.272</td><td>6.1191</td><td>0.190</td></tr>
<tr><td>. *| . |</td><td>. *| . |</td><td>5</td><td>-0.069</td><td>-0.167</td><td>6.2566</td><td>0.282</td></tr>
<tr><td>. | . |</td><td>. *| . |</td><td>6</td><td>0.045</td><td>-0.133</td><td>6.3180</td><td>0.389</td></tr>
<tr><td>. |* . |</td><td>. |* . |</td><td>7</td><td>0.193</td><td>0.124</td><td>7.5521</td><td>0.374</td></tr>
<tr><td>. *| . |</td><td>. *| . |</td><td>8</td><td>-0.121</td><td>-0.106</td><td>8.0788</td><td>0.426</td></tr>
<tr><td>. *| . |</td><td>. | . |</td><td>9</td><td>-0.122</td><td>0.038</td><td>8.6751</td><td>0.468</td></tr>
<tr><td>. |* . |</td><td>. | . |</td><td>10</td><td>0.080</td><td>-0.036</td><td>8.9603</td><td>0.536</td></tr>
<tr><td>. | . |</td><td>. | . |</td><td>11</td><td>-0.018</td><td>-0.052</td><td>8.9760</td><td>0.624</td></tr>
<tr><td>. | . |</td><td>. *| . |</td><td>12</td><td>-0.050</td><td>-0.084</td><td>9.1165</td><td>0.693</td></tr>
</table>

Source: Computation Eview 10

The result shows that exception of lag 2 (where both autocorrelation and partial correlation exhibit negative spark equal 0.05) both variables understudy are negatively correlated with the probability values greater than 0.05 percent level of significance. The implication of this is that both variables understudy are moving in opposite direction. Increase in one will lead to decrease in other. This result is conformity with the study aprior expectation.

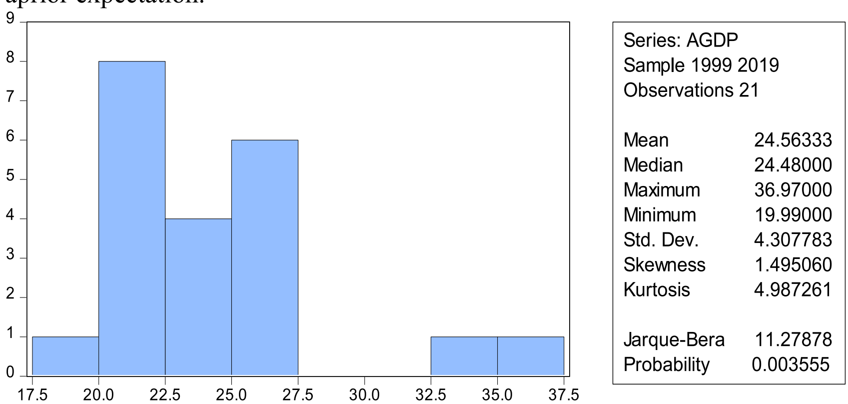

Figure 3 Normality Test
Source: Researcher Computation using Eview 10

The variables understudies were normally distributed given the probability value of 0.04 less than confidence significant level of 0.05.

4.2 Series of Unit Root Test

Table 2: Series of Augmented Dickey-Fuller Test (ADF) Output Results

Coefficients	Critical Values at 5%	ADF Values	Probability	Comments
D(AGDP,2)	-3.040391	-4.616417	0.0002	I(0)
D(EXR,2)	-3.040391	-4.090202	0.0006	I(1)

Source: Researcher Computation using Eview 10

Table 2 presents the series of unit root tests of (ADF). The result shows that at level difference, the variables, namely; agricultural share of GDP and exchange rate are stationary at level I(0). Therefore, the test met the criteria for the conduct of Autoregressive Distributed Lag (ARDL) cointegration test, in order to examine the existence of long-run relationship between agricultural contribution to the gross domestic product and exchange rate in Nigeria, within the sampled period spanning between the periods of 2000 to 2018.

Table 3: Autoregressive Distributed Lag Regression Estimate (ARDL)

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
AGDP(-1)	0.784969	0.236384	3.320734	0.0047
AGDP(-2)	-0.433442	0.248692	-1.742885	0.1018
EXR	-0.017104	0.014463	-1.182565	0.2554
C	19.14569	7.612001	2.515198	0.0238
R-squared	0.520043	Mean dependent var		24.65474
Adjusted R-squared	0.424051	S.D. dependent var		4.463237
S.E. of regression	3.387208	Akaike info criterion		5.462553
Sum squared resid	172.0976	Schwarz criterion		5.661382
Log likelihood	-47.89425	Hannan-Quinn criter.		5.496202
F-statistic	5.417595	Durbin-Watson stat		1.521082
Prob(F-statistic)	0.009996			

Source: Researcher Computation using Eview 10

Table 3 presents, ARDL regression estimation, the first part of the output gives a summary of the settings used during estimation. The result shows that automatic selection (using the Akaike Information Criterion) was used with a maximum of 2 lags of both the dependent variable and the regressor. Out of the 6 models evaluated, the procedure has selected an ARDL (2, 0) including observation 21 after adjustment. However, the coefficient of agricultural share of gross domestic product (AGDP(-1) at period of lag 1 is 0.78 relatively high, but, statistically significant with the probability value of 0.00 which is less than 0.05 level of significance. This implies that holding other factors constant, a one percentage increase in agricultural share of gross domestic product (AGDP(-1) at period of lagged 1 translate to approximately 78% increase in its present value.

More so, the coefficients of the agricultural share of gross domestic product AGDP(-2) at period of lag 2 is -0.43 relatively low but, statistically insignificant with the probability value of 0.10 which is greater than 0.05 level of significance. This implies that holding other factors constant, a one percentage decrease in agricultural share of gross domestic product (AGDP(-2) that is at period of lagged 2 translate to approximately -43% decline in its present value.

In the same vein, the coefficients of the exchange rate at current level period, is -0.017 with probability values of 0.26 which is greater than 0.05 level of significance suggest that exchange rate has negative impact on agricultural share of gross domestic product (AGDP) but its statistically insignificant within the period sampled. This result is in conformity with the study apriori expectation, which postulates that exchange rate is expected to have negative impacts on agricultural share of gross domestic product.

The Coefficient of fixed variable, that is, constant (C) also known as the intercept is the value of agricultural share of gross domestic product. when other independent variables have a value of zero is 19.15 is significant with probability value of 0.00 which is, less than 0.05 level of significance i.e, at 5%. This result simply suggests that increase in agricultural share of gross domestic product. In Nigeria is associated with other factors which are not explained by the explanatory variable stated in the model.

However, autoregressive distributed lag (ARDL) long-run model estimation procedure starts by conducting the bounds test for the null hypothesis of no co-integration. The asymptotic critical values bounds, which were tabulated in Pesaran, Shin, and Smith, (2001), provide a test for cointegration with the lower values assuming the regressors are I(0), and upper values assuming I(1) regressors. If the calculated F-statistics exceeds the upper critical value, the null hypothesis is rejected, implying that there is cointegration. If it is below the lower critical value, the null hypothesis cannot be rejected, indicating lack of cointegration. If the calculated F-statistics falls between the lower and upper critical values, the result is inconclusive. Once cointegration is established, the conditional ARDL long-run model can be estimated.

Table 4: F-Bounds Test

F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
			Asymptotic: n=1000	
F-statistic	6.108226	10%	3.02	3.51
K	1	5%	3.62	4.16
		2.5%	4.18	4.79
		1%	4.94	5.58
Actual Sample Size	19		Finite Sample: n=35	
		10%	3.223	3.757
		5%	3.957	4.53
		1%	5.763	6.48
			Finite	

			Sample: n=30	
		10%	3.303	3.797
		5%	4.09	4.663
		1%	6.027	6.76

Source: Researcher Computation using Eview 10

Table 4 present the F-bound test of null hypothesis of no cointegration regression estimation in order to confirm the no long-run cointegration status. The calculated F-statistics is 2.56 not exceeds the lower and upper critical values of 3.6 and 4.16 respectively at 5% significant level. Therefore, the null hypothesis of no cointegration cannot be rejected, implying that there is no cointegration thus the long run relationship estimate is justified.

Table 5: ARDL Long Run Form and Bounds Test

Conditional Error Correction Regression				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	19.14569	7.612001	2.515198	0.0238
AGDP(-1)*	-0.648473	0.238807	-2.715463	0.0160
EXR**	-0.017104	0.014463	-1.182565	0.2554
D(AGDP(-1))	0.433442	0.248692	1.742885	0.1018
* p-value incompatible with t-Bounds distribution.				
** Variable interpreted as Z = Z(-1) + D(Z).				
Levels Equation				
Case 2: Restricted Constant and No Trend				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
EXR	-0.026375	0.018590	-1.418781	0.1764
C	29.52428	3.420592	8.631337	0.0000
EC = AGDP - (-0.0264*EXR + 29.5243)				

Source: Researcher Computation using Eview 10

Table 5 reveals the result of ARDL long run form estimated Conditional Error Correction Regression. The coefficient of fixed variable of 19.145 is significant based on the probability value of 0.00 which is less than 0.05% level of significance. This result suggests that is autonomous increase in agricultural share of gross domestic product (AGDP(-1) at period lag was not caused by the explanatory variable stated in the model. More so, the long run form estimate shows that agricultural share of gross domestic product D(AGDP(-1)) at differences coefficient is 0.43 with probability value of 0.10 which is greater than 0.05% level of significance suggest that D(AGDP(-1)) has positive impact on agricultural share of gross domestic product but it is statistically insignificant based on the p-value. The implication of this result is that increase in agricultural share of gross domestic product by one percent result to increase in agricultural share of gross domestic product by 43%.

Furthermore, coefficient of exchange rate was -0.01 with probability value of 0.25 which is greater than 0.05% levels of significance is statistically insignificant. This result suggests that one percent increase in exchange rate causes -0.1% decline in agricultural share of gross domestic product. However, Conditional Error Correction Regression consequently produced levels equation alongside the conditional error correction regression outcome. The result at level equation is very similar to conditional error correction regression outcome with little variation in the coefficient of variables understudy. More so, error correction model mechanism regression conducted shows the speed of error adjustment. ECM is a category of multiple time series model that directly estimates the speed at which a dependent variable returns to equilibrium after a change in an independent variable. ECM incorporates the long-run equilibrium in the dynamic adjustment (that is the short-run model). The ECM is also closely bound up with the concept of co-integration.

Table 6: ARDL Error Correction Regression

ECM Regression				
Case 2: Restricted Constant and No Trend				
Variable	Coefficient	Std. Error	t-Stat istic	Prob.
D(AGDP(-1))	0.433442	0.231534	1.872042	0.0808
CointEq(-1)*	-0.648473	0.219767	-2.950728	0.0099
R-squared	0.339562	Mean dependent var		0.2457 89
Adjusted R-squared	0.300713	S.D. dependent var		3.8048 29
S.E. of regression	3.181728	Akaike info criterion		5.2520 26
Sum squared resid	172.0976	Schwarz criterion		5.3514 41
Log likelihood	-47.89425	Hannan-Quinn criter.		5.2688 51
Durbin-Watson stat	1.521082			
* p-value incompatible with t-Bounds distribution.				
F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
F-statistic	2.560822	10%	3.02	3.51
K	1	5%	3.62	4.16
		2.5%	4.18	4.79
		1%	4.94	5.58

Source: Researcher Computation using Eview 10

Table 6 presents ARDL ECM regression estimation, in this context, the estimated parameters were subjected to test based on economic theory so as to ascertain whether they agree with expected sign. In other words, the model sought to relate the changes in agricultural share of gross domestic product in Nigeria to its explanatory variable exchange rate (EXR) to ascertain the conformation with 'a priori' expectation underlying the variable. The result shows that, the CointEq(-1) coefficient of the error correction term which measures the speed of adjustment towards long-run equilibrium is negative and statistically significant at 5% level. The ECM has the expected negative sign which stands at -0.65. This implies that the rate at which changes in agricultural share of gross domestic product (AGDP) at time t, adjusts to the single long-run co-integrating relationship is different from zero. In other words, the equation of agricultural share of gross domestic product (AGDP) at time t, contains information about the long run relationship, the reason why co-integrating equation enter the model automatically. The coefficient of the ECM revealed that the speed with which changes in agricultural share of gross domestic product (AGDP) at time t, adjusts respond to regressors is about -65% in the short-run. This is in conformity with this study aprior expectation.

Furthermore, the R-Square often refers as the coefficient of determination also known as a measures of the goodness-of-fit, is 0.33, approximately 33%. This means that 33% of the changes in agricultural share of gross domestic product (AGDP) at time t, are explained by the changes in the explanatory variables while, the remaining 67% could be explained by factors outside this model represented by error term. Adjusted R-squared, value is the same as R-Square that is 33% variation in the dependent variable is explained by only those independent variable that, in reality, affect the dependent variable. More so, Durbin-Watson statistic (DW) is 1.5 approximately 2 shows there is no serial autocorrelation. Below the table 7 present the bound test of ECM regression estimation. The bound test of ECM regression estimation, which include F-bound test and t-bound test were conducted in order to confirm the long-run cointegration status.

5.0 Conclusion and Recommendation

The study used Time Series date and Agricultural contribution to the Gross Domestic Product (AGDP), spanning 2000 to 2018, obtained from the Central Bank statistical bulletin. The study used the Augmented Dickey-Fuller (ADF) test, the Autoregressive Distribute Lag (ARDL) and the Error Correction Model (ECM). The ADF showed that, at difference, AGDP and EXR are non-stationary of order 1(0), but produced a mixed stationary in the first differencing. The ARDL revealed that the coefficient of AGDP was relatively low but statistically insignificant.

In conclusion, there exist a negative relationship between EXR and AGDP in Nigeria, within the period of the study. As exchange rate increased, the value of the naira depreciated and affected Agricultural produce. This paper, therefore, recommended that, government should introduce policies like; price ceiling and quantity quota on import to limit rate of volatility of exchange rate. Similarly, agricultural should be made to be export-oriented rather than import-oriented in order to strengthen the naira over the dollar. More so, the Central Bank of Nigeria (CBN) should, through moral suasion, appeal to commercial banks and other lending institutions to channel their lending to the agricultural sector in order to improve local production for export purpose.

References

Alao, R. O. (2010). Interest rate, determination in Nigeria: An econometric X-ray. *International Research Journal of Finance and Economics*, (47), 43-52.

Amassoma, (2011). The nexus of interest rate deregulation, lending rate and agricultural productivity in Nigeria. *Current Research Journal of Economic Theory*, 3(2), 53-61.

Anyanwu, J, C. (2007). The Structure of the Nigerian Economy. 16, 212 – 231.

Babatunde, H. (2018). Exchange rate deregulation and inflation in Nigeria (1986 – 2008). *Business and Economics Journals*, (28), 1-11.

Central Bank of Nigeria (CBN), (2019). *Annual Report and Statement of Accounts for the Year Ended 31st December, 2019.*

Enoma, (2016). An estimation of the relationship between expenditure and agricultural output in Nigeria: *International Journal of Business and Social Science*.vol.2, No. 13, 285-298

Jenrola, et al (2017). Exchange rate volatility and the gross domestic product, *Discussion Paper*, No. 154-23

Killiki, I. (2016). Exchange rate variation and inflation in Nigeria (1970 – 2007). Unpublished MSc Thesis University of Skovde.

National Bureau of Statistics (NBS), (2019), *Annual Journal* on Sectoral Performance

Obstfeld, M. (2002). Exchange rate and adjustment: *Perspective from the new Open Economy Macroeconomics Manuscripts*. University of California, Berkeley.

Okpara, G.C. (2019). Analysis of the nexus between exchange rate and gross domestic product: An econometric analysis, M.Sc. Dissertation, presented to the department of economics, University of Jos

Olaniyan, (2017). Exchange rate regime and economic growth: A review of the theoretical and empirical literature. *Discussion Paper* No. 2009-31.

Olubanjo, P. O., Akinleye, S. O. & Ayanda, T. T. (2018). Economic deregulation and supply response of cocoa farmers in Nigeria. *Journal of Social Science*, 21(2), 129-135.

Omojimite, B. O. (2012). Institutions, macroeconomic policy and growth of agricultural sector in Nigeria. *Global Journal of Human Social Science*, 12(1), 1-8.

Oyahhilomen, (2017). The economics of exchange rate regimes: *A Review Essay*. World Bank.

Yesufu, P. O. (2007). Exchange rate Deregulation and Interest rate in Nigeria, 2(3), 183–200.