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BALANCE OF PAYMENTS POSITION AND THE DYNAMICS OF AGRICULTURAL OUTPUT IN NIGERIA

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ABSTRACT

This paper explored the empirical relationship between Balance of Payments (BOP) position and agricultural output in Nigeria. The BOP position was measured using current and capital account balances. Again, nominal effective exchange rate was introduced to the model as part of the explanatory variables. Combinations of Dynamic Least Squares (DOLS) and Granger causality test formed basis for the econometrics analysis in addition to the unit root and cointegration tests. The unit root test results indicate that all the variables are first difference stationary. The outcome of the cointegration test revealed that the variables have long run relationship. The cointegrating regression result showed that both current and capital balances are significant in driving the productivity of the agricultural sector while nominal effective exchange is statistically insignificant in influencing agricultural output. More so, the Granger causality test revealed that on one hand, a unidirectional causality runs from current account balance to agricultural output while on the other hand, joint causality runs from the three explanatory variables to agricultural output. It is therefore recommended for that policy makers should ensure that measures capable of maintaining favourable BOP position are prioritized in the macroeconomic policy design and implementation in order to foster rapid and sustained growth of the agricultural output.

Keywords: Balance of payments, Agricultural output, current account, capital account and Nigeria.

1. INTRODUCTION

The role of Balance of Payments (BOP) in driving real sector development has remained at the frontier of monetary and international economics literature. In addition to current account balance which focuses on cross border trade of tangible and intangible commodities, the BOP also comprises capital account balance which has promoted continued linkage of the global economic environment. Khumalo and Kapingura (2014) opine that capital inflows associated

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with BOP are good sources of growth in the recipient economies. This is based on the proposition that capital inflows are intended to boost productivity in the key sectors of the economy which are considered as having the capacity to generate positive spill-over effects on the overall economy.

The current account balance of the BOP is considered to reflect the economic transactions of a country with the rest of the world. Eğilmez and Kumcu (2011) argue that this plays an important role in the decision making process of economic agents, especially firms. Following the central place of BOP in the real sector development, the monetary and fiscal authorities in developing economies strive to maintain favourable BOP through proper coordination of the policy measures. This is because the transmission channels through which balance of payments influence real sector performance is increasingly taking the center stage in international macroeconomics literature and other related fields. The monetarist approach to balance of payment (MABP) considers BOP as a monetary phenomenon. Additionally, the International Monetary Fund (IMF, 2000) is of the view that disequilibrium in the BOP is a reflection of disequilibrium in the money market.

Like other developing countries, balance of payment disequilibrium has remained a recurring incidence in the Nigerian economy, thus, increasing the debt burden, especially from the external sources. The external debt burden increased from US$960 million in the 1970s to an average of US$32 billion in 1990s (Ezenekwe, Metu and Kalu, 2015). This mounted pressure on the BOP position and subsequently depleted the foreign reserve build-up. The IMF (2001) observed that the pressures on the Nigerian BOP position eased for three years, particularly in 1979, 1980 and 1990. The sources of these positive trends in the BOP could be traceable to boom in the global oil price in the late 1970s and the positive spill-over effects associated with 1986 structural adjustment programme policy initiative.

The BOP position in the pre-independence and early post-independence era in Nigeria when agriculture played a dominant role in economic prosperity is adjudged as relatively better compared to its position in recent time. Shuaid and Asamota (2010) posit that the boom in agricultural output triggered surplus in the BOP position. However, this surplus seem not to last longer than expected as the Nigerian economy started experiencing downward trend in the 1980s following the shock in the global oil price. The poor outcome of the oil market and the associated imbalances in the external sector intensified in the late 1980s. This necessitated huge borrowings from both bilateral and multilateral sources and as such added to the sources of shock in the BOP. Policy actions aimed at containing these challenges include structural adjustment programme (SAP) of 1986 and fiscal coordination. Particularly, the SAP focused on the deregulation of exchange rate, trade policy reforms and other forms of stabilization policies.

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It is worthy of note that BOP disequilibrium has been identified in economic literature as one of the macroeconomic shocks that limits sustainable growth and development in low income economies, Nigeria inclusive. Shuaib, Agustine and Frank (2015) opined that shocks in current account and capital account balances are associated with negative growth in the Nigerian economy. These often manifest in the forms increasing borrowing from domestic and international sources, price instability, rising level of interest rate and instability in core indices of macroeconomic development.

The extent to which real sector productivity responds to changing dimensions of BOP position has continued to dominate debates in international macroeconomic literature in recent time with competing and conflicting views. This has triggered further inquiry into the implications of the components of BOP position on productivity of the overall economy. Although, economic theory assumes that the BOP position plays a significant role in real sector development, empirical evidences in many developing economies including Nigeria have varied. Whilst some emerging economies are testimonies of positive impacts of the BOP on real sector performance, Nigeria as indicated in Manggoel et al (2012) seems to achieve sub-optimal results in terms of the performance of the real sector.

More so, the strategies employed by successive governments in achieving rapid and sustained growth of the real sector through favourable balance of payments have further exacerbated the BOP problem in Nigeria. Nwani (2003) argued that the BOP crisis is a notable source of distortion in the Nigerian economy. Again, Azubuike (2016) observed that Nigeria's experience in terms of deficits in the current account is, unarguably, an impediment to the process of growth as it seems to intensify the extent of indebtedness to the rest of the world. The unstable terms of trade and continuous growth in imports are key sources that pose huge challenges to capital account balance in Nigeria, thereby constraining the availability of fund required for investment in the real sector. Ezenekwe, Metu and kalu (2015) assert that the imbalance in capital account indicates rising trends of deficits in Nigeria's BOP position. The seemingly re-occurring dismal performance of the capital account balance has remained a major source of worry to monetary authorities considering its net-marginal effects on real sector funding. In views of the ongoing controversies, this paper sets out to estimate the link between BOP position and agricultural growth in Nigeria.

2.0 REVIEW OF RELATED LITERATURE

2.1 Balance of Payments-Constrained Growth Theory

The BOP-constrained growth theory was developed by Thirlwall (1979). This theory focuses on how BOP position affects the growth of an economy. According to Anoka and Takon (2014), this approach to balance payments model relates trade to growth given that exports is assumed to

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drive growth. This is anchored on the assumption that trade constitutes a major constraint to economic growth, especially when imbalances in the BOP positions persists. It is important to note that the focus of the balance of payments-constrained growth is on the rate of growth or adjustments in the relative price considered necessary to foster equilibrium in trade at relative prices which contrasts with the neoclassical approach. The neoclassical approach mainly treats countries as operating at full employment levels of output, particularly in the long run.

In their contribution to the BOP constrained-growth model, McCombie (1997) observes that the bone of contention is the long-run equilibrium growth rates and not the determination of the equilibrium levels of economic prosperity. Thirlwall (1997) opines that the core assumption of the BOP constrained-growth model that exports are the only component of autonomous demand, balanced trade level, and stable terms of trade may seem unrealistic in the short run, but the long-run differences in growth performance are captured. The Thirlwall's BOP constrained-growth model takes into consideration only the current account component. This approach is narrow in outlook because despite the importance of current account, capital flows also matter a lot in the growth process of many developing countries. In view of the drawbacks of the first model as it focuses on current account in explaining the growth of developing economies, the second model was proposed by Thirlwall and Hussain (1982). The Hussain-Thirlwall (H-T) model as it is popularly known incorporated capital flows and the terms of trade in addition to the current account balance, thus, providing a more appropriate model for developing economies. Anoka and Takon (2014) observed that the Hussain-Thirlwall (H-T) model has advantage over the traditional, neo-classical and neo-liberal explanations of the growth differences among countries in accordance with their resource availability, the supply factors, labour force, capital stock and technological progress. Thus, increase in exports is identified as a driving force for foreign exchange earnings considered necessary for the payment of imported capital goods to bolster growth.

2.2 Stylized Facts on BOP Position and Agricultural Output in Nigeria

The BOP position in Nigeria has varied overtime. This is in response to the dynamics of economic activities in the overall economy. For instance, the current account component of the BOP which is concerned with the volume of exports of goods, services and transfers and imports over a particular period has fluctuated as presented in Figure 1.

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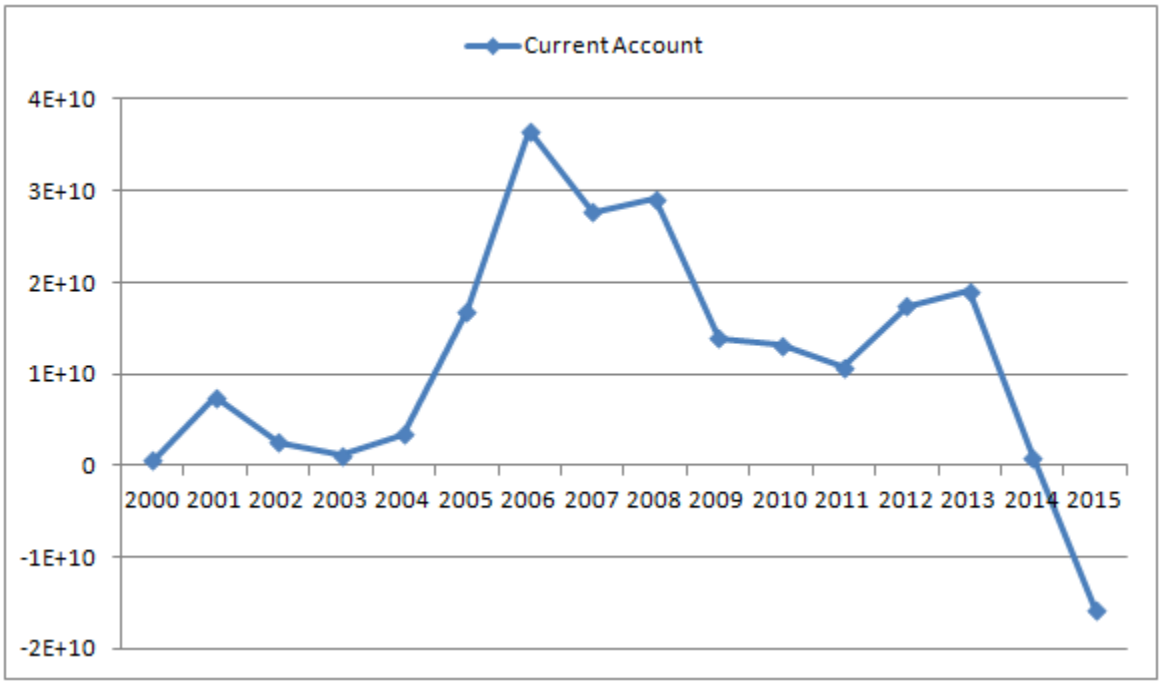

Figure 1: Trends of current account in Nigeria, 2000-2015.

As showed in Figure 1, current account fluctuated during 2000-2015. It rose from US$505750064.2 in 2000 to US$7427061116 in 2001 before declining to US$2477762769 in 2002. It reached a maximum value of US$36529017085 in 2006, but fluctuated further between 2007 and 2014. The variations in current account balance could be linked to the distortions that characterize the net export component of the aggregate demand in Nigeria.

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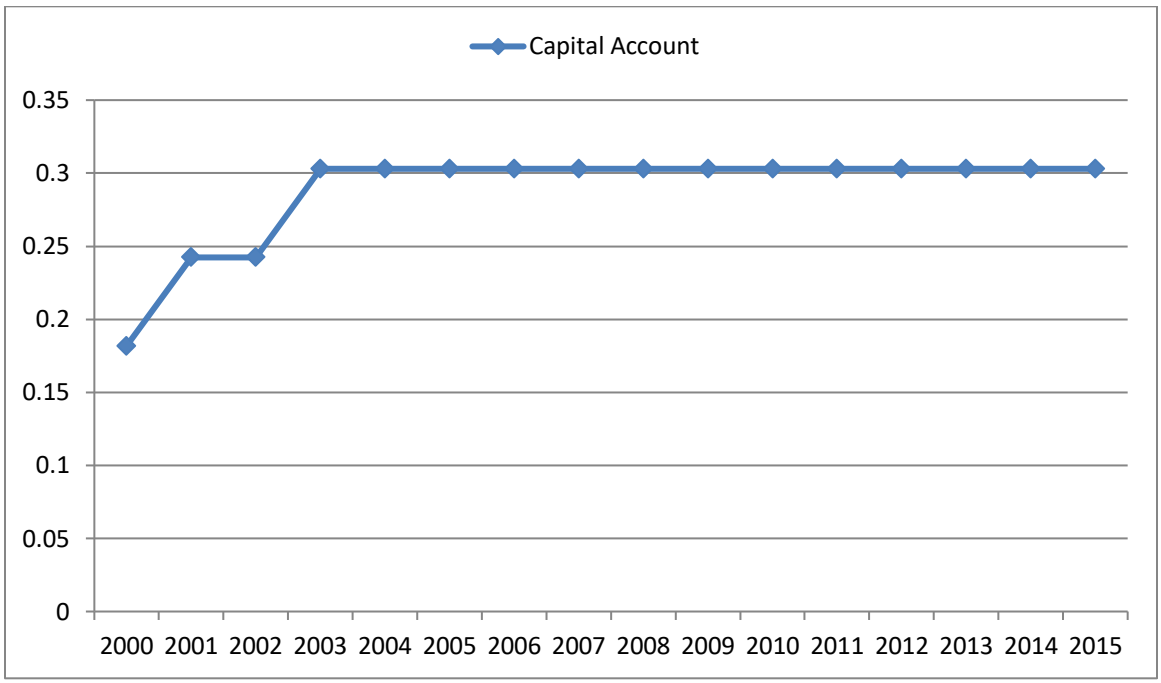

Figure 2: Trends of capital account balance in Nigeria, 2000-2015.

Figure 2 shows the capital account balance measured by the index of capital mobility increased from 0.182 in 2000 to 0.242 in 2001. It increased further to 0.303 in 2003 and remained stable in the rest of the period. The increase in the capital account openness can be traced to the rise in financial integration as monetary authorities in Nigeria are ensuring that the Nigerian financial system is adequately linked to the rest global financial environment.

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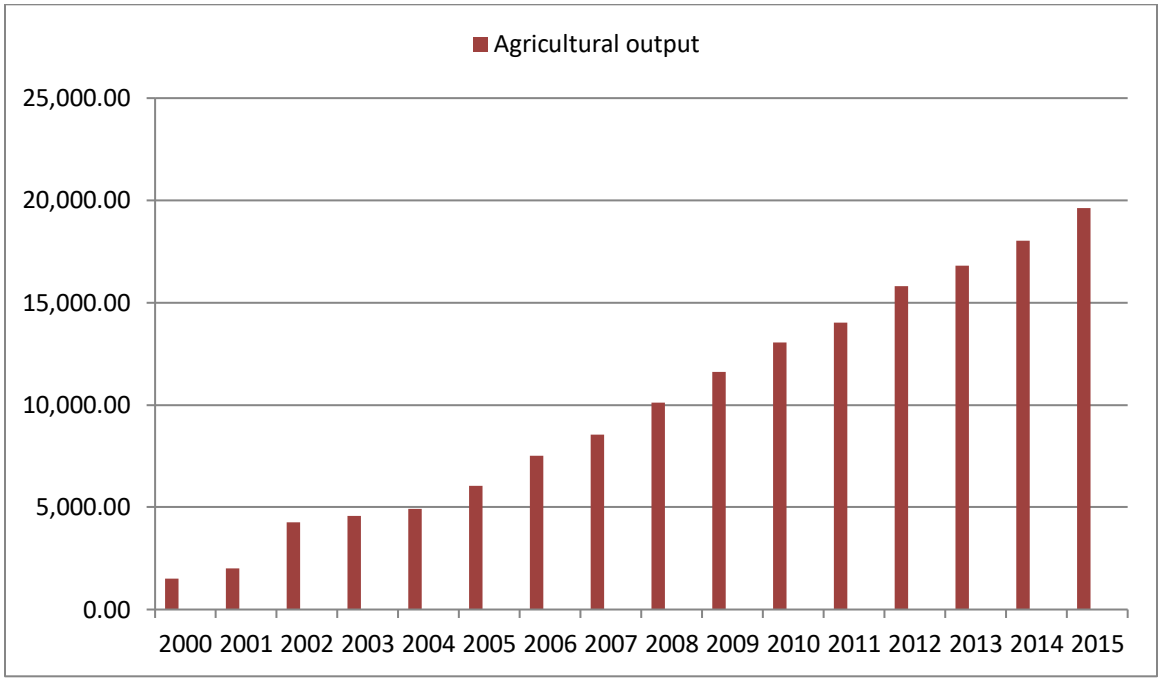

Figure 3: Trends of agricultural GDP in Nigeria, 2000-2015.

Agricultural GDP showed in Figure 3 trended upward for the study period. It rose from ₦1,508.41 billion in 2000 to a maximum value of ₦19,636.97 billion in 2015. This suggests that crop production, livestock, fisheries and forestry which characterize overall agricultural output in Nigeria has continued to increase.

2.3 Empirical Literature

In their study, Márcio, Flávio and Otaviano (2014) focused attention on the macroeconomic determinants of growth in ten Latin American countries using the balance-of-payments constrained growth model. The crux of the study lies in estimating the income elasticities of imports to test the Thirlwall´s law and see how well the model can be utilized in forecasting long-run growth in the study area. The econometrics tools utilized for the include unit root test and Vector Autoregressive (VAR) model. The results revealed that strong evidence of a long-run relationship exist among real GDP, exports and imports mainly for Brazil and Chile. The empirical results for Mexico indicated the presence of high income elasticity when compared to the other countries, but also of high rates of growth of real GDP. Thus, the study recommended for countries in Latin American region to evolve changes in their specialization of production with a view to achieving sustainable high long run growth rates.

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Contributing to the body of knowledge, Shuaib, Augustine and Frank (2015) estimated the link between BOP and economic growth in Nigerian over the period 1960-2012. Secondary data were collected from the Central Bank Statistical Bulletin for the period 1960-2012 and used for the empirical analysis. Group unit root test, cointegration test and Granger causality test were carried out. It was found from the result that a unidirectional causality runs from real GDP to balance of payment, exchange rate, external debt, and from external debt to foreign trade. Additionally, the result shows that bidirectional causality only exists between external debts and exchange rate. Hence, the study recommended in addition that government should encourage the export of non-oil goods to other countries in order to foster the diversification of the economy into other viable aspects.

Khumalo and Kapingura (2014) developed and estimated Vector error correction model (VECM) to analyze the impact of capital account liberalization on economic growth in Africa with a focus on South Africa. The estimation of the VECM followed the tests for unit root and cointegration. From the analysis of the relationship existing between capital flows, measured with foreign direct investment (FDI) and portfolio investment (P-I) and economic growth, the study found that long-run relationship exists between the variables. In accordance with the findings, the study recommended that for the benefits associated with capital account to be maximized, proactive efforts should be made by policy makers and other key stakeholders to design and implement sound macroeconomic policies capable of shielding the Nigerian economy from the external shocks and maintain rapid economic growth.

More so, Ezenekwe, Metu and Kalu (2015) relied use data on economy wide aggregate which spans from 1970 to 2012 to examine the nexus between BOP adjustment and productivity growth in Nigeria. A macro-econometric model was developed and estimated to adequately capture the relationship between the underlying variables. The error correction model was adopted as data analysis method in addition to the unit root and cointegration tests. The study also carried out a stability test by plotting the cumulative sum of squares residuals (CUSUM) of regression estimates. The result shows that oil revenue, real trade balance, credit to the private sector, foreign direct investment, government expenditure and degree of openness have positive and significant effect on real GDP for the period studied. The stability test result reveals that that the test CUSUM plots falls within the 5 percent critical bound, indicating that the regression estimates are stable during the period studied. Therefore, the study concluded that monetary authorities can use exchange rate alignments to develop the external sector of the Nigerian economy and by so doing corrects any disequilibrium in the BOP positions.

Aydin and Esen (2016) used quarterly data (1999:Q2 - 2014:Q2) to estimate the threshold effects of current account deficits on economic growth in Turkey. The threshold autoregressive (TAR) model was applied in the empirical analysis. The results showed that the estimated threshold

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value of the deficits for economic growth averaged 4 percent, and any ratio of the current account deficits exceeding this threshold is considered as having negative effect on economic growth while any ratio below this threshold is viewed as generating positive effect on economic growth. The study therefore conclude based on the findings that stakeholders at the economic and political landscapes should consider the outcome of the study helpful economic and political targeting in terms of keeping the deficit rate below the estimated threshold level of 4 percent in order to avert its negative implication on the process of growth.

3.0 MATERIALS AND METHOD

3.1 Nature and Source of Data

The data used in this paper are annual time series data on variables of interest comprising current and capital account balances, nominal effective exchange rate and agricultural output. Data on nominal effect exchange rate and agricultural output were collected from Central Bank of Nigeria Statistical Bulletin whereas data on current account balance were obtained from the IMF Financial Statistics. Additionally, the Chinn and Ito (2008) index of capital account openness formed for the data on capital account balance. Each of the observations for the variables spanned through the period of 1981 to 2017.

3.2 Model Specification

The model set up for this paper is a dynamic regression equation anchored on the Thirlwall and Hussain (1982) BOP constrained growth theory which assumes that current and capital account as well as terms of trade are the integral parts of BOP position which influence macroeconomic outcomes. The model specifically includes agricultural output (AGROP) as the dependent variable while the independent variables include current account balance (CURA), capital account balance (CAPA) and nominal effective exchange rate (NER). The model specification is formally expressed as:

$$AGROP_t = b_0 + b_1 CURA_t + b_2 CAPA_t + b_3 NER_t + \sum_{i=1}^{q} \emptyset_1 \Delta CURA_{t-i} + \sum_{i=1}^{q} \emptyset_2 \Delta CAPA_{t-i} + \sum_{i=1}^{q} \emptyset_4 \Delta NER_{t-i} + U_t \quad (1)$$

Where: AGROP, CURA, CAPA and NER described in earlier in sub-section 3.2. b_0 denotes constant parameter, $b_1 - b_3 =$ Long run Multipliers, $q =$ Optimal lag order while $\Delta =$ First difference operator and $U_t =$ Stochastic term.

3.3 Method of Data Analysis

In this paper, the dynamic ordinary least squares (DOLS) method was applied in estimating the long run relationship between agricultural output and the underlying indices of BOP position. As a dynamic estimation method, the DOLS was considered appropriate for this paper following the

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inherent nonstationary properties of the macroeconomic time series and its capacity of overcoming the common problem of simultaneity often associated with time series analysis. The DOLS is also adjudged as good estimation technique, especially when the observations are small or relatively large. More importantly, the directional of causality between BOP position and agricultural output was determined using Granger causality test.

Prior to the actual estimation of the model, the data were subjected to unit root test using the method proposed by Philips and Perron (1988) which involves non- parametric procedure. The null hypothesis of unit root was tested against the alternative hypothesis of no unit at 5 percent level of significance using adjusted t-statistics. The general specification of the model for Phillips-Perron test which allows for a drift and linear trend is of the nature:

$$\Delta Y_t = g_0 + g_{1t} + \sum_{i=1}^{q} w_i \, \Delta Y_{t-i} + U_t \qquad (2)$$

Where: Y_t = variable of interest, g_0 and g_{1t} denote drift and deterministic trend respectively. q = lag length, Δ= First difference notation, w_i = autoregressive coefficient and U_t = random disturbance term. In addition to the unit root, cointegration test was equally conducted to know if in actual fact, linear combination of the nonstationary series can lead to

The optimal lag length for each of the variables in the Augmented Dickey Fuller approach shall be decided using Schwarz information criterion (SIC). An evidence of a unit root suggests that the economic time series being examined is non-stationary. However, stationarity can be ascertained through data transformation using Difference Stationary Process (DSP) to check if the variable is integrated of order one [I(1)].

3.3.1 Cointegration test

The cointegration test is important in checking whether or not two or more variables can move together in the long run. Aside being a popular practice in most econometrics analysis, cointegration test has been identified in literature as pre-condition for the estimation of long run regression model which are the core analytical tools in this paper. In view of the multivariate model employed for this study, the cointegration test procedure developed by Johansen and Juselius (1990) was utilized in examining whether or not the variables have lon ng relationship. The trace and Max-Eigen statistics as computed by Johansen and Juselius were applied in testing the null hypothesis of no cointegration against the alternative hypothesis of cointegration at the conventional 5 percent level. The log-likelihood ratio equations for the cointegration test with focus on Trace and Max-Eigen statistics are of the form:

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$$J_{trace}(r) = -N \sum_{i=r+1}^{q} In\left(1-\hat{\lambda}_i\right) \quad (3.1)$$

$$J_{\max}(r, r+1) = -N\, In\left(1-\hat{\lambda} r+1\right) \quad (3.2)$$

Where: $\hat{\lambda}$ = estimated parameters of the characteristic roots

N = number of observations

r = number of cointegrating vectors

q = lag length

Evidence of at least one cointegration equation indicates that the variables are cointegrated and as such exhibits long run relationship.

4.0 RESULTS AND DISCUSSION

4.1 Test for Unit Root

The results of the Unit root test for all the variables in the model are presented in Table 1.

Table 1: Summary of the ADF unit root test results

Variable	Levels test result	First difference test result	Order of integration
	t-statistic	t-statistic	
LOG(AGROP)	0.526 (0.999)	-4.116 (0.014)	I(1)
CURA	-2.331 (0.407)	-5.950 (0.000)	I(1)
CAPA	-1.979 (0.593)	-5.364 (0.001)	I(1)
NER	-1.988 (0.588)	-4.580 (0.004)	I(1)

Source: Author's calculation from the data extracted from the CBN Statistical Bulletin, IMF Financial statistics and Chinn-Ito index.

The results in Table 1 show that the ADF unit root was performed at both levels and first difference. The levels test results indicate that all the variables contain unit root. This is in accord with the non-stationary assumption of macroeconomic times. The approach to stationarity followed in this paper is the differencing of the series and they are found to be stationary at 5 percent level of significance after being differenced once. This was observed from the associated probability value of each of the t-statistics less than 0.05. Hence, all the variables are I(1).

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4.2 Cointegration Test Results

In addition to the unit root test, cointegration test was equally performed to determine if the variables have long run relationship. The Johansen-Juselius method was applied for this test and the results are presented in Table 2.

Table 2: Cointegration test results

Series: Log(AGROP) CURA CAPA NER					
Trace Test Result			Max-Eigen Test Result		
Null Hypothesis	Trace Statistic	0.05 Critical Value	Null Hypothesis	Max-Eigen Statistic	0.05 Critical Value
r = 0*	94.604	47.856	r = 0*	52.524	27.584
r ≤ 1*	42.079	29.797	r ≤ 1*	31.453	21.132
r ≤ 2	10.627	15.495	r ≤ 2	10.520	14.265
r ≤ 3	0.107	3.841	r ≤ 3	0.107	3.841

Source: Author's calculation from the data extracted from the CBN Statistical Bulletin, IMF Financial statistics and Chinn-Ito index.

NB: r represents number of cointegrating vectors while * denotes rejection of null hypothesis at 5 percent level.

The cointegration test result in Table 2 revealed that the trace test shows evidence of cointegrating vectors. Similarly, the maximum eigenvalue test result shows that two cointegrating vectors exist in the model. In view of the evidence of two cointegrating vectors from the trace and maximum eigenvalue tests, the null hypothesis of no cointegration amongst the variables is rejected. Therefore, long run relationship exists amongst the variables at 5 percent level of significance.

4.3 Cointegrating Regression Model

The cointegrating regression model was estimated using DOLS and the result is showed in Table 3.

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Table 3: Cointegrating regression result

Dependent Variable: LOG(AGROP)				
Method: Dynamic Least Squares (DOLS)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
CURA	9.71E-11	4.65E-11	2.089341	0.0490
CAPA	18.21408	7.170928	2.539989	0.0191
NER	-0.028433	0.019408	-1.465006	0.1577
C	4.847110	0.644729	7.518060	0.0000
R-squared	0.830688	Mean dependent var		7.102544
Adjusted R-squared	0.733938	S.D. dependent var		2.265757
S.E. of regression	1.168705	Sum squared resid		28.68330
Long-run variance	2.996965	F-statistic	10.524	Prob.(F-stat.) 0.000

Source: Author's calculation from the data extracted from the CBN Statistical Bulletin, IMF Financial statistics and Chinn-Ito index.

The result in Table 3 shows that current and capital account balance positively influence agricultural output over the study period. This result is in line with the hypothesized sign and satisfies the statistical condition. The implication of this finding is that exports and capital mobility across the national boundaries in Nigeria drive the growth of agricultural output in the long run. The result further showed that nominal effective exchange rate exerts an insignificant negative impact on agricultural output. This could be linked to the inconsistencies surrounding foreign exchange policy in Nigeria. The model is associated with high explanatory power given that 83 percent of the overall variations in agricultural output are due to changes in the regressors. The F-test for the overall significance of the model shows that the explanatory variables are jointly significant in influencing the productivity of the agricultural sector in Nigeria. This implies that changes in agricultural output in Nigeria can be reliably predicted based on the BOP position. The reliability of the model is further verified from the test for serial correlation as showed in Table 4.

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Table 4: Serial correlation test result

Autocorrelation	Partial Corr.		AC	PAC	Q-Stat	Prob*
. |** |	. |** |	1	0.253	0.253	2.3752	0.123
. | . |	.*| . |	2	-0.002	-0.070	2.3753	0.305
.*| . |	.*| . |	3	-0.099	-0.087	2.7652	0.429
. | . |	. | . |	4	-0.015	0.036	2.7743	0.596
. |*. |	. |*. |	5	0.125	0.125	3.4343	0.633
. | . |	.*| . |	6	-0.005	-0.087	3.4354	0.753
.*| . |	.*| . |	7	-0.131	-0.116	4.2153	0.755
.*| . |	.*| . |	8	-0.197	-0.120	6.0386	0.643

Source: Author's calculation from the estimated cointegrating regression model

The serial correlation test was carried out using the correlogram method as showed in Table 4. It was evident from the result that the probability values of the Q-statistics are greater than 0.05 for all the eight lags. This indicates that the residuals are serially independent and as such does not pose a problem in the process of prediction. Hence, forecasting error is not a problem to worry about in the model.

4.4 Granger Causality Test

The Granger causality was carried out at 5 percent level of significance using chi-square asymptotically distributed statistic. The results are summarized in Table 5.

Table 5: VAR Granger causality/block exogeneity wald tests results

Null Hypothesis (H_0): No causality

Direction of causality	Chi-square (X^2) calculated	P-value	Decision
CURA→AGROP	21.958	0.000	Reject H_0
AGROP→CURA	0.579	0.446	Accept H_0
CAPA→AGROP	0.240	0.624	Accept H_0
AGROP→CAPA	0.618	0.432	Accept H_0
NER→AGROP	0.125	0.724	Accept H_0
AGROP→NER	0.627	0.429	Accept H_0
CURA, CAPA, NER→AGROP	26.581	0.000	Reject H_0

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Source: Author's calculation from the data extracted from the CBN Statistical Bulletin, IMF Financial statistics and Chinn-Ito index.

The Granger causality test was prompted in this paper in order to determine the direction of causality amongst the underlying variables. The result shows that a unidirectional causality flows from current account balance to agricultural output. This indicates that the volume of exports plays important role in predicting changes in agricultural output. Most importantly, the result revealed that joint causality flows from the underlying regressors to agricultural output. This implies that the explanatory variables have predictive power on agricultural output in the long run and as such the null hypothesis of no causality is rejected.

5.0 CONCLUSION

This paper centered on the dynamics of BOP and its implication on agricultural productivity. In addition to the core indices of BOP position, current and capital account balance, nominal effect exchange rate was introduced as part of the explanatory variables in the dynamic agricultural growth model. The cointegrating regression result showed that both current and capital balances are significant in driving the productivity of the agricultural sector. This finding was further was further authenticated by the outcome of the Granger causality test which revealed that on one hand, a unidirectional causality runs from current account balance to agricultural output while on the other hand, joint causality runs from the three explanatory variables to agricultural output. Overall, this paper concludes that the compositions of BOP are important sources of growth in the agricultural sector. Thus, policy makers should ensure that measures capable of maintaining favourable BOP are prioritized in the macroeconomic policy design and implementation in order to foster rapid and sustained growth of the agricultural output.

REFERENCES

Anoka, A. F. and Takon, A. (2014). Balance of payments constrained growth in developing economies: The case of Nigeria. *International Journal of Development and Sustainability, 3(9), 1822-1835*

Aydın, C. and Esen, O. (2016). The Threshold Effects of Current Account Deficits on Economic Growth in Turkey: Does the Level of Current Account Deficit Matter? *International Journal of Trade, Economics and Finance, 7(5), 186-193.*

Azubike, A. (2016). Balance of payments and policies that affects its positioning in Nigeria. *MPRA Paper No. 74841.*

Chinn, M. D., & Ito, H. (2008). A new measure of financial openness. *Journal of comparative policy analysis, 10*(3), 309-322.

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Eğilmez, M. & Kumcu, E. (2011). *Economic Policy: Theory and Practice in Turkey*. Istanbul: Remzi Publishing.

Ezenekwe, U. R., Metu, A., & Kalu, C. U. (2015). Balance of Payments Adjustment and Productivity Growth in Nigeria: A Small Macroeconometric Analysis. *Journal of Economics and Sustainable Development, 6(10),126-139.*

International Monetary Fund (2000). *Balance of Payments Manual, IMF, Washington, D. C.*

International Monetary Fund (2001). *Balance of Payments Manual, IMF, Washington, D. C.*

Johansen, S., & Juselius, K. (1990). Maximum likelihood estimation and inference on cointegration—with applications to the demand for money. *Oxford Bulletin of Economics and statistics*, *52*(2), 169-210.

Khumalo, S. A., & Kapingura, F. M. (2014). Impact of Capital Account Liberalization on Economic Growth in Africa: A Case Study of South Africa. *Mediterranean Journal of Social Sciences*, *5*(20), 2753.

Manggoel W., Uguru M.I., Ndam O.N. and Dasbak M.A., (2012). Genetic variability, correlation and path coefficient analysis of some yield components of ten cowpea [Vigna unguiculata (L.) Walp] accessions. *Journal of Plant Breeding and Crop Science 4(5),80-86.*

McCombie, J. (1997). On the empirics of balance-of-payments-constrained growth. *Journal of Post Keynesian Economics,19(3).*

Nwani, V. M. (2005). Determinants of balance of payment fluctuation In Nigeria. Available on: http://mpra.ub.unimuenchen.de

Phillips, P. C., & Perron, P. (1988). Testing for a unit root in time series regression. *Biometrika*, *75*(2), 335-346.

Shuaib, I. M., & Asemota, F. O. (2010). Managerial Economics: Theories. *Applications & Cases, Auchi-Edo State, Prosper Prints*, 509-510.

Shuaib, I. M., Augustine, O. E., & Frank, A. O. (2015). Balance of Payments: Nigerian Experience. *British Journal of Economics, Management & Trade 7(4), 296-305*

Thirlwall, A. & Hussain, M. (1982). The balance of payments constraint, capital flows and growth rates differences between developing countries. *Oxford Economic Papers, 34.*

Thirlwall, A. (1979). The balance of payments constraint as an explanation of international growth rates differences. *Banca Nazionale del Lavoro Quarterly Review, 128.*

