

The Impact of Trade Liberalisation on Nigeria Agricultural Sector.

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ABSTRACT

This study attempts to examine the impact of trade liberalization on Nigeria agricultural performance (model one) with special interest on export sub-sector (model two) using time -series analysis. It is stated clearly that performance of Nigeria agricultural sector and its export sub-sector is a function of trade liberalization. In this work trade liberalization is decompose into macroeconomic variables as thus agricultural degree of openness, agricultural capital formation, agricultural export to import price ratio, real exchange rate and foreign investment on agriculture. The test on hypothesis of model one revealed that two explanatory variables (EP/IP,LOG(FIA)) are statistically significant and three variables (LOG(ADO),LOG(ACF),REXR) are not statistically significant while that of model two revealed that two explanatory variables (ADO,LOG(FIA)) are statistically significant and three variables (ACF, EP/IP,REXR) are not statistically significant having passed the rule of thumb and conventional t-criteria. The F-statistics which test the overall significant of the entire regression model revealed that the overall regression of both models are statistically significant, The Error Correction Model of Ordinary Least Square (OLS) results from the time -series analysis confirm that agricultural degree of openness and agricultural export to import price ratio were significant in the both models; whereas, agricultural capital formation, real exchange rate and foreign investment on agriculture are not significant. The Error Correction Model findings from the MODEL 2 follow the same direction as the MODEL 1. Therefore, it becomes necessary for policy makers to formulate policies that will eventually enhance investment in agricultural capital formation, real exchange rate and foreign investment on agricultural in Nigeria as this will lead to increased output and promote exportation of agricultural products.

Keywords: Agricultural Products, Trade Liberalisation, Agricultural Sector, Export, Import, Capital Formation, Gross Domestic Product, Agricultural Policy.

1. Introduction

Trade liberalization is the process of reducing or removing restrictions on international trade. This may include the reduction or removal of tariffs, abolition or enlargement of import quotas, abolition of multiple exchange rates, and removal of requirements for administrative permits for imports or allocations of foreign exchange. Liberalization of agriculture was more pronounced during the Uruguay Round 1986-1990. In recent years, trade in agriculture has not only attracted growing attention but is being viewed as the vehicle for global growth and equity. By expanding markets and by removing distortions caused by high levels of protection in agriculture, global trade will not only facilitate competition but spur growth in an area that is linked directly to poverty and hunger. The main goal of agricultural trade has been said to be provision of enabling environment for a majority of the world's poorest to take advantage of the enormous opportunities to improve incomes and enjoy healthy lives. The World Bank estimated that more rapid growth associated with a global reduction in trade protection could reduce the number of people living in poverty by as much as 13 per cent in 2015. In simple words, 300 million people could be pulled out of poverty (Bhaskar, 2005).

In Nigeria, the term "trade liberalization" became pronounced through the adoption of the IMF Structural Adjustment Programme (SAP) in 1986, which its primary aim was to restructure and diversify the productive base of the economy. In addition, the SAP was also designed to establish a realistic and sustainable exchange rate for the Naira through trade and payment liberalization, tariff reforms, commercialization and privatization of

public enterprises (Oyejide, 1990).

This study focused on trade liberalization with respect to Nigeria's agricultural sector. Trade liberalization is expected to have an impact on agricultural sector and its export sub-sector through various transmission channels: mainly through exchange rate, capital formation (machinery, equipment, buildings, fertilizers, pesticides, animal feed, drainage and irrigation water and other structures), and prices etc. The broad objective of this study is to ascertain whether trade liberalization has strengthened the Nigerian agricultural sector.

Specific objectives are: to determine the impact of trade liberalization on Nigerian agricultural productivity; and to determine the impact of trade liberalization on Nigerian agricultural export sub-sector.

2. Literature Review

Egwaikhide (1993) worked on determinants of long-term growth in Nigerian Agricultural productivity with special interest on imports in Nigeria using a dynamic specification. The study concentrated on imports alone, however, and left out the effects on exports. The effects on domestic disappearance were also not examined. Osuntogun et al. (1999), in their analysis of strategic issues in promoting Nigeria's non-oil exports, determined the effects of exchange rate uncertainty on Nigeria's non-oil export performance as a side analysis. Their work is the pioneering effort in Nigeria to determine the effects of exchange rate risk on exports; their model did not take into consideration the cross-price effects.

Abolagba, et al (1996), assert that the net trade balance value shows that agriculture remains a deficit trade balance. During the pre-1970 era, Nigeria was involved in the exports of its agricultural products notably cocoa, natural rubber and palm oil. This contributed immensely to foreign earnings for the country. The implication of net exports shows that agricultural exports can adequately finance agricultural imports. Generally, the net trade balance value shows that Nigeria remains a net importer with regards to agriculture.

Adubi, and Okunmadewa, (1999) researched on Price, exchange rate volatility and Nigeria's agricultural trade flows using EVAR. The study was able to establish that exchange rate volatility has a negative effect on agricultural exports, while price volatility has a positive effect. Thus, the more volatile the exchange rate changes, the lower the income earnings of farmers, which subsequently also leads to a decline in output production and a reduction in export trade. However, price volatility exerts a positive effect on the level of exports. Also an appreciation of the local currency decreases export earnings, while an increase in export price influences the level of exports positively. The implication is that if the exchange rate change is more volatile, it tends to increase the prices of export crops, but the general effect leads to a decline in export production. Furthermore, the study also established the efficacy of price increase as a tool for increasing output of export crops. For import trade, the appreciation of the exchange rate reduces imports, while its volatility has a positive effect. If the exchange rate and import prices are volatile, they tend to increase the level of imports. The study has also shown that the SAP era, though beneficial in terms of price increases of agricultural exports, has also resulted in a high level of price and exchange rate fluctuations.

Akanni, et al. (2008), examining the effect of trade liberalization on agricultural exports in Nigeria, observed that the policy had tremendous effects on the level and value of exports in agricultural sub-sector. A regression analysis relating the total value of agricultural produce and the aggregated domestic prices, and other relevant parameters of four commodities accounted for between 65 and 87 percent of the variability in income from the foreign sector of Nigeria Agricultural commodity trade between 1990 and 1998. High value of co-efficient of elasticity further confirmed that export trade in these four commodities would dominate the Nigeria Agricultural export trade for years to come.

Emma and Nzewi (2008) evaluated the extent World Bank sponsored Agricultural Development Project (ADP) has gone in Nigeria with a view to identifying the areas of problems. In pursuant of this objective, survey research method was adopted. Data collected through questionnaire were presented in tables and analyzed. The findings revealed among others, that policy approach that excluded the beneficiaries from participating in the project design, planning and implementation is not desirable. Recruitment of extension staff were not based on expertise and professionalism, but on political considerations and parochial interests. The three financiers – World Bank, Federal and State governments of Nigeria do not make their contributions as and when due. Frequent change in leadership has also affected the operation of World Bank sponsored ADP.

2.1 Theoretical Framework

There has been no trade theory that is said to supersede the others among all trade theories even though the concept is an age-long phenomenon. However, we adopted in this study theories that support/criticize free trade and technology transfer; these theories are stated below:

The theory of absolute advantage which is attributed to Adam Smith discusses the benefit a country can achieve by actively participating in the international division of labour. Smith argued that specialization in production

leads to increase in output. This theory advocates that a country that trades internationally should specialize in producing only those goods in which it has absolute advantage. The country can then export a portion of those goods and import goods that its trading partner produce more cheaply. According to Smith, this approach would lead to global efficiency. Smith based his theory on the assumptions of: (i) the trade involves only two countries, (ii) only two goods are traded by the two countries, (iii) the countries have the same level of resource input.

Comparative advantage theory which is credited to David Ricardo proposed that countries can benefit from each other even though one has absolute advantage over the other in the production of both goods. The comparative advantage comes if each trading partner has a product that will bring a better price in another country than it will at home. If each country specializes in producing the goods in which it has a comparative advantage, more goods are produced, and the wealth of both countries increases. This theory is based on the following assumption: (i) there is perfect competition in all markets. This means that; (a) firms are price takers, (b) firms choose output levels that equalizes the price with the marginal cost ($P = MC$), (c) output is homogenous across all firms, (d) free entry exit (e) perfect information. (ii) only two countries are involved in the trading, (iii) both countries produce only two goods, (iv) labour is the only factor of production and it is homogenous and can freely move between industries but is immobile between two countries, and (v) there is no cost of transportation between countries.

Heckscher-Ohlin theory seeks to explain the pattern of international trade as determined by the relative factor of production existing in countries. This theory postulates that, trade arises from differences in comparative costs which in turn arise from inter-country differences in relative factor endowments. This means that countries should make use of locally abundant factors to produce export goods and import goods that are locally scarce. By implication the emphasis of this theory is that countries should rely on factor endowment. This links international trade to the international movement of labour and capital. The theory is based on the following assumptions; (i) there are no transport costs and impediment to trade, (ii) there is also perfect competition in commodity and factor market, (iii) all production function are homogeneous of the first degree, (iv) the production function differ between commodities but are the same in both countries. It is the belief of many economists that Heckscher-Ohlin model is an improvement on the Ricardian theory of comparative advantage (Jhingan, 2006).

The Ricardian and Heckscher-Ohlin theories are based on the assumption that technology is the same in all trading countries, as such, they do not analyse the effect of technological change on trade. M.V posner in an article in 1961 analysed the effect of technology. Posner regards technological changes as a continuous process which influences the pattern of international trade. A technological innovation in the form of production of a new good in one country leads to the imitation gap and the demand gap in the other country. The extent to which trade will take place between the two countries depends on the net effect of the demand lag and the imitation gap. The imitation gap theory explains the sequence of innovation and imitation but as it affects the pattern of trade. When a firm innovates in the form of a new product which becomes profitable in the domestic market, it enjoys a temporary monopoly. As it exports the product to foreign market and has an absolute advantage in this product. After some time, the profit of the innovating firm encourages imitation in the other country. But it will continue to export the product and have a comparative advantage in its production till the importing country learns the new process, change plant, equipment, etc in order to produce it, this is the imitation gap. According to Posner, the imitation gap has three components. The first is the "foreign reactions lag" which is the time taken by the innovating firm to start the production of the new product. The second is the "domestic reaction lag" which is the time taken by other domestic producers to follow suit and establish a hold on the domestic market. The third is the "learning period" which is the time taken by domestic producers to master the technique of producing the new product and selling it in the domestic market. These three components together form the imitation lag.

Porter's theory of competitive advantage suggests that the pattern of trade is influenced by four attribute: (i) factor endowments: this refers to nation's position in factors of production such as skilled labour or infrastructure necessary to compete in a given industry; (ii) domestic demand conditions: this relates to the nature of home demand for the industry's product or service; (iii) the presence of related and supporting industries: this relates to the presence or absence in a nation of supplier industries or related industries that are nationally competitive; (iv) firms strategy, structure and rivalry: this relates to the conditions in the nation governing how companies are created, organized and managed and the nature of domestic rivalry.

2.2 The Arguments

Trade liberalization according to the protagonists is economic integration for global output expansion, in that, with market liberalization, investment funds can move unimpeded from industrialized countries to developing countries where they are most needed. Consumers can also benefit from cheaper products because reduced tariffs make goods produced from hi-tech industrialized countries cheaper to buy. In the same vein, producers of goods gain by selling to a wider market, while countries will benefit by gaining access to modern technology, negotiate

for multilateral and/or bilateral trade (Ayodamola, 1997).

While antagonists argue that trade liberalization is a conscious effort by the western world to deliberately force some of their economic policies that may not be favorable to the receiving economy with the aim of perpetually contributing to the under-development of the less developed countries. It is seen as another form of post-colonialism strategy which does not promote self-reliance, self-determination and indigenization (Ojoh, 2005). They also argued that the success of most developed nations is through protectionism and subsidies and not because of free trade (Ha-Joon, 2007). It is on this point of view that trade liberalization is defined as integration toward unified economic system dominated by supra-national countries and institutions that are not accountable to democratic processes or national governments (Richard,2000). In addition, further reasons for the changing perception of liberalization are thus, the lack of tangible benefits to most developing countries from opening their economies, despite the well publicized claims of export and income gains which antagonists argue that it is even lesser than economic losses and social disorder rapid trade liberalization has caused many developing countries; they also argue that trade liberalization has led to growing inequalities of wealth, technology, decreasing opportunities both in home and the international community, and the perception that environmental, social and cultural problems have been worsened by the workings of free trade economy (Aja, 1998).

2.3 An Overview of Nigerian Agricultural Sector

The Nigerian agricultural sector has remained a resilient sustainer of the economy and the Nigerian people in terms of food supply, employment, national income generation and industrialization. It has also struggled to perform the above functions over the years in spite of declining effectiveness of policy attention since the 1980s. The exploitation of the agricultural sector since the 1960s provided the main source of employment, income and foreign exchange earnings for Nigeria. This was due to focused regional policies based on commodity comparative advantage. The sector employed over 70 percent of the labor force, fed the population estimated at 55million and 60million in 1963 and 1965 respectively, guaranteeing the greater percentage of the food security of the average household. In the same period, export of cash crops earned 70 and 62.2 percent respectively, of Nigeria's total foreign exchange and contributed 56.7 and 66.4 percent of GDP in 1960 and 1965 respectively. The dominant position of the agricultural sector in this period in the Nigerian economy was therefore, not in doubt. The advent of commercial exploitation of oil resources, however, turned the trend against agriculture and its downstream industries from the rest of seventies onwards. The oil boom, heralded an era of decay and decline in agricultural output and in the overall contribution of the sector to the economy, evidenced by the Dutch Disease. It lost its foreign exchange earnings capacity, domestic revenue importance, and attracted policy neglect. This neglect turned a threat to national food security leading to massive and continuous food importation with an erosion of value addition gains of the sector as agricultural raw commodities were exported only for finished goods to be imported (Adeokun,2005).

As cited by Onyehialam (2009); "The agricultural sector which has been relatively stagnant at 3% growth performance moved from 4.1% growth rate in 1998 to 7.4% by end 2009. This was as a result of a renewed attention of the government within the period through various reform programmes that also encouraged increasing private sector entrepreneurial activities (but not necessarily due to the effectiveness of policy implementation in the long run)".

Given the enormous challenges facing the agricultural sector, Nigeria has continuously been unable to achieve food self-sufficiency and food security. Consequently she spends about \$3billion on annual food importation, while the sector subsists on subsistence scale, riddled with low productivity and poor return to investment. A Food Security Policy (2008) and its programmes government was designed to resolve the several bottlenecks to agricultural development and food self sufficiency by promoting modern and large scale agricultural production. The policy thrusts include import substitutions for staple food supply, food security and employment generation to reduce rural-urban drift. The import substitution objective requires the production of food and cash crops domestically in quantities and qualities (and value addition) that will close the gaps necessitating importation demand.

A combination of many policy strategies (monetary, fiscal and sectoral, etc) has been used to encourage local production and discourage importation of food commodities. The inconsistency and non-transparency in implementing many of such measures have limited their results such that occasional high tariff on imported food commodities, subsidy on agricultural inputs, and single digit interest on agricultural credit have not yielded as expected (Oni, 2008).

3 Methodology

The specification of econometric model is always based on economic theory or any available information relating to the phenomenon being studied (Koutsoyiannis, 1977). The type of data used in this research work is

the secondary data. Also data were collected from some institutions like: National Bureau of Statistics (NBS), Central Bank of Nigeria (CBN), World Development Indicators (WDI), UNESCO and the United Nation's Statistical Division (UNSTAT), etc. We also made a comparative analysis of the various data collected from year to year so as to see the fluctuation and variations.

Model 1

This model is intended to capture the objective one of the study

$$NAP = f(ADO, ACF, (EP/IP), REXR, FIA, \dots) \quad (1)$$

Where:

NAP= Nigerian Agricultural productivity (Contribution of Agriculture to GDP.)

ADO = Agricultural Degree of openness.

ACF = Agricultural Capital Formation.

(EP/IP) = Agricultural exports and imports price ratio.

REXR = Real Exchange Rate

FIA = Foreign Investment on Agriculture.

Econometric transformation of the model i.e. (1):

$$NAP = \beta_0 + \beta_1 ADO + \beta_2 ACF + \beta_3 (EP/IP) + \beta_4 REXR + \beta_5 FIA + \mu_t \quad (2)$$

Since there are other unobservable variable that can explain NAP, we then add the unobservable variables as DPS = Domestic Political Stability/Instability (error term) into (2) then we have:

$$NAP = \beta_0 + \beta_1 ADO + \beta_2 ACF + \beta_3 (EP/IP) + \beta_4 REXR + \beta_5 FIA + \beta_6 DPS + \mu_t \quad (3)$$

When transformed into a log-linear form, it becomes,

$$\text{LogNAP} = \beta_0 + \beta_1 \text{LogADO} + \beta_2 \text{LogACF} + \beta_3 \text{Log}(EP/IP) + \beta_4 \text{LogREXR} + \beta_5 \text{LogFIA} + \beta_6 \text{LogDPS} + \mu_t \quad (4)$$

A priori Expectations (1): $\beta_0 > 0$; $\beta_1 > 0$; $\beta_2 > 0$; $\beta_3 > 0$; $\beta_4 > 0$; $\beta_5 > 0$; $\beta_6 > 0$;

Model II

This model is intended to capture objective 2 of the study, the equation is stated below;

$$AEX = f(ADO, ACF, (EP/IP), REXR, FIA, \dots) \quad (5)$$

Where,

AEX = Agricultural Export Sub-Sector (Volume of Agricultural Export)

ADO = Agricultural Degree of openness.

ACF = Agricultural Capital Formation.

(EP/IP) = Agricultural exports and imports price ratio.

REXR = Real Exchange Rate

FIA = Foreign Investment on Agriculture.

Econometric transformation of the model i.e. (5):

$$AEX = \gamma_0 + \gamma_1 ADO + \gamma_2 ACF + \gamma_3 (EP/IP) + \gamma_4 REXR + \gamma_5 FIA + \mu_t \quad (6)$$

Since there are other unobservable variable that can explain NAP, we then add the unobservable variables as CLC = Climatic Changes, Rainfall (error term) into (6) then we have:

$$AEX = \gamma_0 + \gamma_1 ADO + \gamma_2 ACF + \gamma_3 (EP/IP) + \gamma_4 REXR + \gamma_5 FIA + \gamma_6 CLC + \mu_t \quad (7)$$

When transformed into a log-linear form, it becomes,

$$\text{LogAEX} = \gamma_0 + \gamma_1 \text{LogADO} + \gamma_2 \text{LogACF} + \gamma_3 \text{Log}(EP/IP) + \gamma_4 \text{LogREXR} + \gamma_5 \text{LogFIA} + \gamma_6 \text{LogCLC} + \mu_t \quad (8)$$

A priori Expectations (2): $\gamma_0 > 0$; $\gamma_1 > 0$; $\gamma_2 > 0$; $\gamma_3 > 0$; $\gamma_4 > 0$; $\gamma_5 > 0$; $\gamma_6 > 0$;

4. Presentation and Analysis of Results

The result of the model was gotten from the estimation of models specified in the methodology. The estimation procedure employed in this analysis is the ordinary least squares method of estimation (OLS) and the econometric software is the E-view.

EVALUATION OF RESULTS FOR MODEL 1**TABLE 4.1.1****DEPENDENT VARIABLE LOG (NAP)**

<i>VARIABLES</i>	<i>COEFFICIENT</i>	<i>STD. ERROR</i>	<i>t-STAT</i>	<i>PROB</i>
C	5.068857	0.765322	6.623172	0.0000
LOG(ADO)	-0.766809	0.078332	-9.789254	0.0000
LOG(ACF)	0.170566	0.094132	1.811994	0.0788
EP/IP	0.382725	0.112805	3.392800	0.0018
REXR	0.002498	0.001861	1.342380	0.1884
LOG(FIA)	0.239392	0.065272	3.667591	0.0008

$$R^2 = 0.98 \quad DW = 1.02$$

$$R^{-2} = 0.98 \quad (F - STAT) = 322.5 \quad Prob(F-stat) = 0.00000$$

From the regression result presented above the intercept C shows that on the average a unit increase of the independent variables will led to 50.6 percentage increase in the dependent variable that is Nigerian Agricultural performance (LOG (NAP)). In the agricultural Degree of Openness (ADO), a percentage increase on ADO will lead to 76.6 percent decrease on the dependent variable Nigerian Agricultural performance. This is in contradiction with the Linda's theoretical postulations which argues that economic openness bring about expansion, reduction in cost of production which reduces the level of import, increases export and domestic production. Therefore it is expected theoretically that an increase in degree of openness will lead to increase in domestic performance, but contrary is the case given the result obtained in these work which means that Nigeria imports more than she exports. In the agricultural capital formation (ACF) a percentage increase on ACF will lead to 17.0 percent increase on the dependent variable NAP. In this work Agricultural capital formation is proxy to be imported and domestically made farm tools (fertilizer, pesticide, fungicide, installation of irrigation and drainages, etc) and machines (tractors, ploughs, harvesters, etc). the result obtained here confirms to a-priori expectations because it is believed theoretically that technology enhances domestic production, but my little argument here is that 17% contribution is not really enough to justify agricultural capital formation in Nigeria because huge fund have been invested in these aspect of agriculture in Nigeria, secondly fifteen years structural result shows that as the year increases the contribution on agricultural capital formation decreases which is not a good stand, nonetheless the result will be taking as estimated. In the ratio of export to import prices (EP/IP), a unit increase on the ratio of export to import prices (EP/IP) will lead to 38.2 percent increase on the dependent variable NAP. This shows that on the average export prices (the numerator) is greater than import prices (the denominator), secondly it shows a favorable commodity terms of trade (TOT). if we compare the result obtained here with that of agricultural degree of openness (ADO) , we will discover that there is conformity between the two. ADO result shows that Nigeria volume of import is greater than the volume of export and the ratio of export to import prices (EP/IP) result revealed that Nigeria exports prices is greater than import prices. Therefore it not wrong to state that Nigeria import more because the import prices are cheaper than export prices. In the real exchange rate (REXR), a unit increase on the real exchange rate (REXR) will lead to 0.24 percent increase on the dependent variable NAP. This implies that an increase in real exchange rate (REXR), increases the Nigerian Agricultural performance (NAP) and this conform to a-priori expectations and also holds ground in Nigeria economy. In the foreign investment on agriculture (FIA), a percentage increase on foreign investment on agriculture (FIA) will lead to 23.9 percent increase on the dependent variable Nigerian Agricultural performance (NAP). This implies that an increase in foreign investment on agriculture increases the Nigerian Agricultural performance (NAP) and this conform to a-priori expectations and also holds ground in Nigeria economy.

2.1. TABLE 4.1.2 STATIONARITY TABLE

VARIABLES	ADF STAT	5% CRITICAL VALUE	ORDER OF DIFFERENCE	ASSESSMENT
LOG (NAP)	-3.886089	-2.9422	D(NAP(-1),2)	STATIONARY @ ORDER 1
LOG(ADO)	-4.859486	-2.9422	D(ADO(-1),2)	STATIONARY @ ORDER 1
LOG(ACF)	-4.259753	-2.9422	D(ACF(-1),2)	„
EP/IP	-5.043824	-2.9422	D(EP/IP(-1),2)	„
REXR	-3.999878	-2.9422	D(REXR(-1),2)	„
LOG(FIA)	-4.489477	-2.9422	D(FIA(-1),2)	„

From the above table, all the variables under study are all stationary at first different order of integration/stationarity.

TABLE 4.1.3 COINTEGRATION TABLE

VARIABLES	ADF STAT	5% CRITICAL VALUE	ASSESSMENT
D(RESID01)	-5.594054	-1.9501	COINTEGRATED

Conclusion

Since the saved residual are integrated at level form then we conclude that the variables are co-integrated implying that there exist a short run stability among the variables under study.

TABLE 4.1.4 ECM TEST RESULT

VARIABLES	COEFF	t-VALUE	ASSESSMENT
D(RESID01)	-0.285694	-1.525013	It takes 28% speed to adjust from disequilibrium to equilibrium

EVALUATION OF RESULTS FOR MODEL 2

TABLE 4.2.1 DEPENDENT VARIABLE LOG (AEX)

VARIABLES	COEFFICIENT	STD. ERROR	t-STAT	PROB
C	6.026156	0.541973	11.11891	0.0000
ADO	0.251274	0.047098	5.335106	0.0000
ACF	0.000358	0.000300	1.192473	0.2413
EP/IP	0.107898	0.072902	1.480044	0.1481
REXR	0.001058	0.002073	0.510373	0.6131
LOG(FIA)	0.128932	0.051527	2.502224	0.0173

$R^2 = 0.84$ $DW = 1.30$

$R^{-2} = 0.82$ $(F -STAT) = 35.61$

From the regression result presented above the intercept C shows that on the average a unit increase of the independent variables will led to 60.2 percentage increase in the dependent variable that is Nigeria Agricultural Export performance (LOG (AEX)). In the agricultural Degree of Openness (ADO), a Unit increase on ADO will lead to 2.5 percent increase on the dependent variable Nigerian Agricultural Export performance (AEX). This conforms with the Linda's theoretical postulations which argues that economic openness bring about expansion, reduction in cost of production which reduces the level of import, increases export and domestic production. Therefore it is expected theoretically that an increase in degree of openness will lead to increase in domestic performance. In the agricultural capital formation (ACF) a unit increase on ACF will contribute to zero percent on the dependent variable AEX. In this work Agricultural capital formation is proxy to be imported and domestically made farm tools (fertilizer, pesticide, fungicide, installation of irrigation and drainages, etc) and machines (tractors, ploughs, harvesters, etc). The result obtained here did not confirm to a-priori expectations

because it is believed theoretically that technology enhances domestic production and boost export. In the ratio of export to import prices (EP/IP), a unit increase on the ratio of export to import prices (EP/IP) will lead to a percent increase on the dependent variable AEX. This shows that on the average export prices (the numerator) is greater than import prices (the denominator), secondly it shows relatively a favorable commodity terms of trade (TOT). If we compare the result obtained here with that of agricultural degree of openness (ADO), we will discover that there is no conformity between the two. ADO result shows that Nigeria volume of import is lesser than the volume of export and the ratio of export to import prices (EP/IP) result revealed that Nigeria exports prices is greater than import prices. In the real exchange rate (REXR), a unit increase on the real exchange rate (REXR) will lead to 0.10 percent increase on the dependent variable AEX. These implies that an increase in real exchange rate (REXR), increases the Nigerian Agricultural export performance (AEX) and this conform to a-priori expectations and also holds ground in Nigeria economy. In the foreign investment on agriculture (FIA), a percentage increase on foreign investment on agriculture (FIA) will lead to 1.28 percent increase on the dependent variable Nigerian Agricultural export performance (AEX). These implies that an increase in foreign investment on agriculture increases the Nigerian export Agricultural performance (AEX) and this conform to a-priori expectations and also holds ground in Nigeria economy

2.2. TABLE 4.2.2 STATIONARITY TABLE

VARIABLES	ADF STAT	5% CRITICAL VALUE	ORDER OF DIFFERENCE	ASSESSMENT
LOG(AEX)	-3.405947	-2.9399	D(AEX(-1),2)	STATIONARY ORDER 1 @
ADO	-4.859486	-2.9422	D(ADO(-1),2)	STATIONARY ORDER 1 @
ACF	-4.259753	-2.9422	D(ACF(-1),2)	„
ROEPIP	-5.043824	-2.9422	D(EP/IP(-1),2)	„
REXR	-3.999878	-2.9422	D(REXR(-1),2)	„
LOG(FIA)	-4.489477	-2.9422	D(FIA(-1),2)	„

From the above table, all the variables under study are all stationary at First different order of integration/stationary.

TABLE 4.2.3 COINTEGRATION TABLE

VARIABLES	ADF STAT	5% CRITICAL VALUE	ASSESSMENT
D(RESID01)	-6.354598	-1.9501	COINTEGRATED

Conclusion

Since the saved residual are integrated at level form then we conclude that the variables are co-integrated implying that there exist a short run stability among the variables under study.

TABLE 4.2.4 ECM TEST RESULT

VARIABLES	COEFF	t- VALUE	ASSESSMENT
D(RESID01)	-0.421964	-2.269669	It takes 42% speed to adjust from disequilibrium to equilibrium

4.2 DISCUSSION OF FINDINGS AND IMPLICATIONS

Since co-integration is established in the model between the long-run equations and the short-run equations, we then based our main interpretations of this work on the short-run equation.

SHORT-RUN EQUATION FOR MODEL 1

Dependent Variable: DLOG(NAP,1)

TABLE 4.2.7

Variable	Coefficient	t-Statistic
C	0.051340	1.662918
DLOG(ADO,1)	-0.676491	-10.06556
DLOG(ACF,1)	0.043026	0.502508
D(EP/IP,1)	0.222298	2.730342
D(REXR,1)	0.000566	0.367960
DLOG(FIA,1)	0.048685	0.906047
RESID02(-1)	-0.285694	-1.525013

The log of the variable (Agricultural degree of openness) has a significant impact on the Nigeria agricultural performance in the short-run, though it did not obey the expected a-priori sign. The negative sign of the variable implies that Nigeria importation exceeds the exportation. The log of the variable agricultural capital formation has no significant impact on the dependent variable but, obeys the expected sign. The insignificance of the variable could be as a result of the fund misappropriation or wrong channeling of farm inputs/resources. The variable ratio of export price to import price has a significant impact on the Nigeria agricultural performance in the short-run, and also conform to a-priori expectations meaning that Nigerian agricultural export prices are higher than import prices meaning Nigeria importation will exceed her exports if the domestic market is not properly protected. Real exchange rate significant thus has no significant impact on the dependent variable. It also did not obey the expected sign. The log of the variable foreign investment on agriculture has no significant impact on the Nigeria agricultural performance in the short-run, though it did obey the expected a-priori sign. The positive sign of the variable implies that foreign investment in Nigeria is relatively encouraging. And residual sign means that the ECM result is negative which obeys a-priori expectations, this means that it takes 28% speed of adjust annually for the variables in disequilibrium in the short-run into equilibrium in the long run.

SHORT-RUN EQUATION FOR MODEL 2

Dependent Variable: DLOG(AEX,1)

TABLE 4.2.8

Variable	Coefficient	t-Statistic
C	0.021036	0.622013
D(ADO,1)	0.264916	2.030438
D(ACF,1)	2.360005	0.077038
D(EP/IP,1)	0.091698	1.061869
D(REXR,1)	0.001371	0.664355
DLOG(FIA,1)	0.044592	0.720892
RESID02(-1)	-0.421964	-2.269669

The variable Agricultural degree of openness has a significant impact on the Nigeria agricultural performance in the short-run, though it did obey the expected a-priori sign. The positive sign of the variable implies that Nigeria export subsector export exceeds the importation. The variable agricultural capital formation has no significant impact on the dependent variable but, obeys the expected sign. The insignificance of the variable could be as a result of resource misallocation. The variable ratio of export price to import price has no significant impact on the Nigeria agricultural performance in the short-run, and also conform to a-priori expectations meaning that Nigerian agricultural export prices are higher than import prices meaning Nigeria importation will exceed her exports if the domestic market is not properly protected. Real exchange rate significant thus has no significant impact on the dependent variable. It also did not obey the expected sign. The log of the variable foreign investment on agriculture has no significant impact on the Nigeria agricultural performance in the short-run, though it did obey the expected a-priori sign. The positive sign of the variable implies that foreign investment in Nigeria is relatively encouraging. And residual sign means that the ECM result is negative which obeys a-priori expectations, this means that it takes 42% speed of adjust annually for the variables in disequilibrium in the short-run into equilibrium in the long run.

5. CONCLUSION AND RECOMMENDATIONS.

The natures of the economy have made it impossible for the economy to experience growth in the face of persistent liberalization of the world economy. This calls for harmonization of the economy on trade liberalization and structural problems which are peculiar to Nigerian economy. Also institutional weakness and corruption equally play a prime role in the stunted growth experienced in the Nigerian economy.

Given the results obtained from this work, we thereby recommend that Nigerian government should retire to commodity board again in more dynamic and commitment, despite the fact that it is believed to have failed in

the past, still the performance of Nigerian agricultural sector precisely the export subsector were better off than now. Recommendations demand that the operations/policy of the commodity board should be designed thus:

- (i) Government should spread the commodity board across all communities in Nigeria with their head and sub-head offices at the local, state and federal government;
- (ii) Develop an engaging research unit to determine the agricultural produce any community can produce;
- (iii) Effectively sponsor/support communities and also give them target which they should met or surpass quarterly and annually.

Secondly federal government should build agricultural development bank and research institutes in all communities so as to engage the real farmers not proposal experts on agricultural activities.

Finally federal government should regulate domestic prices of agricultural produces and importation manufactured agricultural produces mainly the once that can be produced domestically so as to protect and promote local producers.

However, the bridge of the gap between the formal and informal sector will initiate a new era for Nigerian economy that will be characterized by: establishment of commodity boards across the communities of the country with sole responsibility to make sure that all farmers must produce at full capacity; establishment of research institutions in all local government for effective agricultural extension programmes and initiation of new ideals; provision of farm tools and proper distribution; increased effectiveness of government policy and its implementation; protection of the domestic market and effective price control.

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