Trade Liberalization and Economic Performance in Nigeria: Evidence from Agricultural and Manufacturing sectors

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Abstract
This study examines the impact of trade liberalization on performance in the Nigerian economy, with special reference to agricultural and manufacturing sectors. Simultaneous models were developed to capture the joint effects of trade liberalization on the two sectors. The Generalized Method of Moment technique was used to estimate the role of trade liberalization on the performance of the selected sectors. The study shows a significant positive impact of trade liberalization on the output of agricultural sector while a negative but significant relationship exists between measures of trade liberalization and manufacturing output in Nigeria. The study also reveals that exchange rate exerts a positive but insignificant impact on agricultural output while the effect of inflation on agricultural output is positive and significant within the study period. Unlike the agricultural output, both exchange rate and inflation have negative impact on manufacturing sector's output. Moreover, finding from the study also confirmed the possibility of substantial economic linkage between the two sectors, as their magnitudes were positive and significant which suggests some significant level of interdependence between them in the Nigerian economy. The study concludes that government should embark on programmes that promote local production to fully harness the opportunity presents by trade liberalization.

Keywords: Trade liberalization, agriculture, manufacturing, Generalized Method of Moment and Nigeria.

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1.0 Introduction

Trade is an important source of growth in Nigeria and many developing countries. This is based on the implicit belief that trade creates jobs, expands markets, facilitates competition; disseminates knowledge and raises income both to individuals and government. Foreign trade enlarges the market for a country's output while export may lead to growth in national output and may become an engine of growth. Economists have been interested in factors which cause different countries to grow at different rates and achieve different level of wealth. One of such factors is trade liberalization. Over many centuries, international trade has brought together remote parts of the world and different civilization; it has helped to improve disseminated knowledge and ideas, and shaped the course of regions and nations. In addition, trade liberalization helps to stimulate production, promote efficiency and reduce cost of production and thus increase international confidence in market mechanism of an economy (Iyoha and Oriakhi, 2003).

Prior to the discovery of oil in commercial quantity in Nigeria, agricultural sectors has been the main goal post driving the Nigerian economy, providing food and employment for the populace; raw materials for the industrial sector and generating the bulk of the government revenue and foreign exchange earnings with a positive effect on other sectors. However, the oil boom of the 1970s transformed Nigeria from a relatively prosperous agrarian economy to a major exporter of petroleum products. The discovery of the oil industry led to a rapid expansion of urban biased activities, consequently agricultural development was almost entirely neglected by policy makers and the sector entered a relative decline (Ileso, 2000). In early 1980s, there was a slump in the price of petroleum products and this greatly affected the Nation's GDP and export earnings.

In a bid to diversify the economic base of the country away from oil, Nigerian government, under different administrations, embarked on various strategies aimed at boosting economic growth and reducing poverty. Notable ones among these policies were the Green Revolution of 1980, Import Substitution Industrialization Strategy (ISI) which aimed at domestic production of imported goods, Export Promotion Strategy that encouraged export and a host of others. However, 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 Nigerian economy (Oyejide, 1990). In addition, SAP was introduced to reduce the nation's over reliance on crude oil, due to the collapse in oil price in the world market, with greater emphasis on the non oil and tradable sector of agriculture. After the introduction of SAP, several policies have been implemented by the country to reduce barriers to trade and open the economy to international environment.

Trade liberalization has been praised for its beneficial effects on productivity in various sectors of the economy, the use of better technology and investment promotion which are mediums for stimulating economic growth. In addition, trade liberalization may generate significant gains that enhance a country's economic improvement. This suggests that trade encourages lower prices of imported goods and services and prevent price increase which in turns prohibit monopolies. Nigeria is blessed with diverse resources that can place her among the top emerging economies and that the country should specialize in the production of certain products in order to keep prices at a competitive level and minimize cost of production. Alternatively, Nigeria's relatively large domestic market can support the growth in the nation's major sectors but cannot deliver sustained growth needed to make a visible

impact on poverty reduction alone. Therefore, interaction with foreign market is critical to economic survival and the achievement of long term growth and development in Nigeria.

Despite the introduction of these liberalization policies, agriculture and manufacturing sectors have not contributed significantly to GDP, especially when compared with their performance in the late 80s. In addition, a critical look at the performance of the non oil sectors such as the agricultural and manufacturing sectors revealed that the performance of the two sectors with regards to their contribution to gross domestic product (GDP) has been fluctuating (CBN, 2003). This then raise concern on whether the country has actually benefited from trade liberalization especially when considering the country's major non oil sectors of agriculture and manufacturing sectors. This study therefore seeks to examine the impact of trade liberalization on sectoral performance in Nigeria with particular emphasis on agricultural and industrial sectors.

The rest of the paper is divided into five sections. Following the introduction in Section 1 is Section 2, where a brief summary of the theoretical and empirical issues on the relationship between trade liberalization and economic growth is provided. The discussion of methodology is contained in Section 3. Section 4 provides the empirical results and discussion, while section 5 contains the concluding remarks and policy implications.

2.0 Theoretical Review and Empirical Issues

The relationship between trade and growth can be categorized into two strands both in the theoretical and empirical grounds. The first are those who favour free trade as prescribed by the Neo classical trade theory. Starting from the mercantilist school of economic thought, the importance of trade in economic growth and development has been well recognized. This doctrine emphasizes the importance of international trade and pioneered the accounting notion of the balance of payment between a nation and the rest of the world. Much recognition was given to gold and silver as the only strength of the nation, hence the quantity of these precious metals held by a country symbolized that nation's wealth and power. The merchants therefore, wanted to accumulate as much gold and silver as possible while keeping imports to a barest minimum. Any country that would export more than it imported would enjoy an inflow of gold and silver. The policy prescription based on this mercantilist view was to encourage exports and restrict imports. Mercantilists viewed trade primarily as a way to accumulate gold (wealth). Furthermore, they assumed (international) trade was a zero-sum game; i.e. that trade could not be mutually beneficial to all parties. The basic idea here is that a country might have absolute advantage over the other's product. So this country would export its more competitive products and take advantage of markets of its trading partners (Jhingan et al, 2013; Hecksher, 1949). The second strands are those in favour of state intervention.

The principle that trade enhances welfare and growth has long been propagated by Adam Smith in his famous book; *an inquiry into the nature and causes of wealth of nations* published in 1776, he stressed the importance of trade as a vent for surplus production and as a means of widening the market thereby improving the division of labour and the level of productivity. He emphasized that" between whatever places foreign trade is carried on, all of them derived two distinct benefits from it. It carries the surplus part of the produce of their land and labour for which there is no demand among them, and bring back in return something else for which there is a demand. In summary, the absolute advantage trade theory of Adam Smith thus means that a country should specialize in and trade those commodities in

which they had an absolute advantage and should import those commodities in which the trading partner had an absolute advantage.

Smith's productivity doctrine of the benefit of trade theory developed a lot of arguments which led to the Neo classical trade theory of comparative advantage developed by David Ricardo in 1817. The theory prescribed that, given the assumption of perfect competition and full employment of resources, countries can reap welfare gains by specializing in the production of those goods with the lowest opportunity cost and trading the surplus of production over domestic demand, provided the international exchange rate of commodities lie between domestic opportunity cost ratios. These are essentially static gains that arise from allocation of resources from one sector to another so as to increase specialization, based on comparative advantage. The static gains from trade stem from the fact that countries are differently endowed with resources and because of this opportunity cost of producing products vary from country to country. The neo classical trade theory postulate that trade is beneficial to all trading partners. However, as argued by Kazungu (2009), the doctrine of comparative advantage does not guarantee equitable distribution of the gains from trade. The gains from trade depend on exchange rate between trading nations, terms of trade, and on whether the full employment of resources is maintained as economic resources are reallocated as countries specialise. In extreme situation, one country may become absolutely worse off if the real resource gains from trade are offset by a decline in the terms of trade.

On the empirical font, the relationship between trade and growth has been a controversial issue. Studies such as (Sach and Warner, 1995; Frankel and Romer, 1999; Lopez 2005, 2005; Babula and Anderson, 2008 and Bruckner and Lederman, 2012) all found a positive relationship between trade liberalization and economic growth. These studies also concluded that trade openness is associated with more rapid economic growth. However, their findings were challenged by the work of Rodriquez and Rodrik (1999) who dispute the positive relationship between trade liberalization and economic growth on methodological ground. In addition, Tahir and Ali (2014) provide a comprehensive review of literature on trade liberalization and economic growth. The authors identified methodological and empirical issues as sources of disagreement in literature on the relationship between the two variables. Krugman (1990) summarized the reason trade liberalization is good for growth in developing countries to include production patterns that are skewed towards labour intensive service, agriculture and manufacturing.

Also, empirical works on countries specific study have also identified a positive relationship between trade liberalization and economic growth. For instance, Manni and Afzal (2012) examined the effect of trade liberalization on economic growth, export, import and inflation in developing countries with a case study of Bangladesh economy between 1980 and 2010. Using ordinary least square technique, the study found that gross domestic product (GDP) is highly influenced by trade liberalization which further suggests that greater openness has had a favourable effect on economic development in the country. Similarly, Mkubwa, Mtengwa and Babiker (2014) analyses the effect of trade liberalization on economic growth in Tanzania between 1970 and 2010. The authors divide the study period into a closed economy period of 1970 – 1985 and a open economy period of 1986 – 2010. The method of ordinary least square was adopted to estimate the regression for the two periods. Finding from the study indicates that trade openness has a positive and significant impact on economic growth for the two periods in Tanzania.

In Nigeria, most of the studies have focused on the relationship between trade liberalization and economic growth (Nteegah et al, 2017; Olowe and Ibraheem, 2015; Echekoba et al 2015: Olaifa et al 2013) but with divergent views. Most of the studies conclude that trade liberalization has positive and significant influence on economic growth. For instance, Nteegah et al, 2017 in a recent study investigate the inpact of trade liberalization in Nigeria. Employing the Auto Regressive Distributed Lag (ARDL) method, the authors find that oil export and non oil import has positive and significant impact while oil and non-oil import retard growth both in the short and long run.

However, Olowe and Ibraheem (2015) assess the impact of trade liberalization on the Nigerian economic growth. The study use trade openness, dummy variable for nature of regime of administration, exchange rate and dummy variable for structural adjustment programme (SAP) periods. Adopting the Ordinary Least Square (OLS) method, the authors find a negative relationship between trade openness and economic growth in Nigeria. Studies have also examined the effect of trade liberalization and sectoral level in Nigeria (Asongo et al, 2013; Umoru and Eborieme, 2013; Adenikinju and Chete, 2012; Bakare and Famehinmi, 2011). For instance, Umoru and Eborieme (2013) investigated the relation between trade liberalization and industrial growth in Nigeria. Employing Johansen Cointegration and Error Correction Model, the result reveals a positive relationship between trade liberalization and industrial growth in Nigeria. Similar results were obtained by Rashid (2000) and Ahneid (2001) that trade liberalization positively affect manufacturing growth in Bangladesh. Their finding is in conflict with the work of Ezike and Ogege (2012), who examined the impact of trade policy on Nigeria's non-oil export using correlation analysis and ordinary least square technique. Ezike and Ogege (2012) found a negative relationship between trade policy and the non-oil sector in Nigeria over the period 1970 and 2010.

This study differs from the previous works, especially on the Nigeria economy, for the following reasons. First, that impact of trade liberalization is often analyzed in aggregate with major focus on economic growth. Unlike previous studies, the present study attempts to examine the role of trade liberalization at sectoral level since aggregate economic growth depends on the performance on the sectors within the economy. The role of trade liberalization on sectoral development has had little attention in the context of the Nigeria economy. Hence, the present study examines the effect of trade liberalization on the two leading non-oil sector which are agriculture and manufacturing sectors. In addition, the paper adopts different methodology to examine the role of trade liberalization on the sectoral performance between 1981 and 2014.

Specifically, linear simultaneous equation models were developed due to interdependence and joint effect among the two sectors. Such interdependence is formally estimated by linear simultaneous equation system (Ullah, Khan, Ali and Hussain, 2012). If there is growth in manufacturing sector due to trade openness, it would in turn lead to growth in agricultural sector and growth in agricultural sector may amplify the growth of manufacturing sector. Also, unlike existing studies in Nigeria, the Generalized Method of Moment (GMM) estimator was adopted to deal with potential endogeneity bias, simultaneity and measurement error usually associated with simultaneous equation models. Lastly, Nigeria has witnessed several policy changes within the study period of 1981 to 2014 which has been neglected by previous studies. Previous studies have focused on the impact of trade liberalization on economic growth without considering the possibility of structural break in their analysis. Hence, the study examines the effect of trade liberalization on the performance of agriculture

and manufacturing sectors while accounting for the possibility of structural break or policy change within the study period.

This study is of particular interest especially at the current time that the Nigerian economy is striving to strongly diversify her revenue and export base away from oil sector. Enhanced international trade, through the development of major non-oil sectors such as agriculture and manufacturing can be a way out of the country's present economic situation.

3.0 Data and Methodology
3.1 Data
To investigate the impact of trade liberalization on agricultural and manufacturing sectors, we use annual time series from 1981 to 2014 for Nigeria. The series for degree of openness (measured as the ratio of total trade to GDP) serves as a proxy for trade liberalization, exchange rate, outputs from manufacturing, agriculture sectors were taken from the Central Bank of Nigeria's Statistical Bulletin (2014 Edition). Data on inflation were taken from World Development Indicators of World Bank (2014 Edition).

3.2 Theoretical framework and Model Specification
This study is based on the Neo classical trade theory of comparative advantage. This principle postulates that the expansion of trade is beneficial to all trading partners. The implication of neo-classical trade theory is that the overall economic growth would be maximized when a country rescind trade barriers against trading partners (Kazungu, 2009). We adapt model from the work of Olowe and Ibraheem (2015) which can be seen as a reformulation of Neo classical model. To capture the effect of trade liberalization on the performance of the two sectors, we formulate simultaneous equation system as follows:

$$AGRIC = f(DOP, EXR, INF, MANU) \tag{1}$$
$$MANU = f(DOP, EXR, INF, AGRIC) \tag{2}$$

Where,

AGRIC stands for Agricultural productivity (contribution of Agriculture to GDP)

MANU stands for manufacturing sector productivity (Contribution of Manufacturing sector to GDP)

EXR stands for Real exchange rate

INF stands for Inflation

DOP stands for Degree of Openness as measured by the ratio of total trade (import plus export) to GDP

Specifically, transformation of above models respectively becomes

$$AGRIC = \alpha_1 + \alpha_2 DOP + \alpha_3 EXR + \alpha_4 INF + \alpha_5 MANU + \mu_{1t} \tag{3}$$
$$MANU = \delta_1 + \delta_2 DOP + \delta_3 EXR + \delta_4 INF + \delta_5 AGRIC + \mu_{2t} \tag{4}$$

Where μ_{1t} and μ_{2t} in the above models are the stochastic (error) terms used to capture other unobservable variables that explain dependent variables in the above models. When transformed into log linear form, the above equations become:

$$LogAGRIC = \alpha_1 + \alpha_2 DOP + \alpha_3 EXR + \alpha_4 INF + \alpha_5 LogMANU + \mu_{1t} \tag{5}$$
$$LogMANU = \delta_1 + \delta_2 DOP + \delta_3 EXR + \delta_4 INF + \delta_5 LogAGRIC + \mu_{2t} \tag{6}$$

The impact of trade liberalization on the performance of agricultural and manufacturing sectors are respectively captured by equation (5) and (6) above with other variables that contribute to the performance of each sector.

Apriori expectation

Model 1: $\alpha_1 > 0, \alpha_2 > 0, \alpha_3 > 0, \alpha_4 < 0, or > 0, \alpha_5 > 0$

Model 2: $\delta_1 > 0, \delta_2 > 0, \delta_3 > 0, \delta_4 < 0, \delta_5 > 0$

3.3 Definition and Measurement of variables

The main aim of this study is to examine the impact of trade liberalization on the output of agriculture and manufacturing sectors in Nigeria between 1980 and 2014. Each sector's performance is measured by the output from each sector while trade liberalization is proxied by the degree of openness measured by the ratio of total trade to gross domestic products. Also, Exchange rate variable is captured by the Nigeria's nominal effective exchange rate and is measured by Nigerian Naira to American Dollar rate.

3.4 Estimation Techniques: Generalized Method of Moment Estimator

After testing for the unit root of various data employed, the Generalized Method of Moment (GMM) was adopted in order to deal with potential endogeneity bias due to omitted variables, simultaneity and measurement error usually associated with simultaneous equation, in which the exogenous variables are interdependent and jointly determined. The application of the GMM to time series estimation has some attractive features that are relevant to the current study. First, it avoids the need to specify distributional assumptions such as normal errors. Second, it provides a unifying framework for the analysis of many familiar estimators such as ordinary least squares (OLS), other instrumental variable (IV) etc. Third, it offers a robust method of estimation in a situation where the traditional methods appear cumbersome. Fourth, it affords the opportunity to specify an economically interesting set of moments or a set of moments believed to be robust to misspecifications of the economic or statistical model (Kennedy, 2003).

4.0   Results

4.1   Descriptive Statistics of the Data Series (1981-2014).

This section examines the characteristics of the time series of agricultural sector output (AGRIC), manufacturing sector output (MANU), trade liberalization proxy with the ratio of total trade to GDP (DOP), exchange rate (EXR) and inflation (INF) in Nigeria (1981-2014). This is with a view to revealing the nature of salient features of the data series. The summary statistics are presented in Table 1. The table shows the summary statistics of the variables in the model. These relate to mean, median, minimum and maximum values, and the distribution of the sample measured by the skewness, kurtosis, and the Jarque-Bera (JB) statistic. The table shows that all the series display a high level of consistency as their means and medians have values within the maximum and minimum values. However, the summary statistics recorded relative high standard deviations for most of the series except for the index of trade liberalization. This indicates that the dispersions of the actual data from their means are very high. It can also be observed that most of the series, except AGRIC, are moderately skewed with their values tending towards zero. Similarly, the probability on JB statistic is generally high for all the series except AGRIC indicating the acceptance of hypothesis of normal distribution.

Table 1: Summary Statistics

	AGRIC	MANU	DOP	EXR	INF
Mean	3167.446	339.689	0.426	67.883	39.007
Median	1366.340	366.610	0.450	22.031	25.008
Maximum	13069.150	823.860	0.700	159.730	134.925
Minimum	16.020	31.660	0.110	0.618	0.494
Std. Dev.	4065.548	253.532	0.177	63.737	43.098
Skewness	1.217	0.211	-0.325	0.222	0.966
Kurtosis	3.125	1.795	1.880	1.259	2.708
Jarque-Bera	8.410	2.309	2.377	4.623	5.417
Probability	0.015	0.315	0.304	0.099	0.067
Observations	34	34	34	34	34

4.2 Unit Root Test Results

The unit root properties of all variables employed were obtained using the Augmented Dickey–Fuller test (ADF) to identify the stationarity or otherwise of variables used in the study. The results of the unit root show that only the index of trade liberalization is stationary at level and thus I(0). Other variables such as LAGRIC, LMANU, EXR and INF are stationary at their first difference indicating that they are I(1) variables. To account for Structural break or policy changes, we adopted the structural break unit root test proposed by Zivot and Adrew (1992) and this is presented in Table 3. The result in table 3 is similar to the result from unit root without structural break in Table 2 except EXR which is stationary at level when structural break is taken into consideration.

Table 2: ADF Unit Root Test Results (constant and linear trend)

Variable	Level		First Difference		Order of Integration
	Test Statistic	Critical level	Test Statistic	Critical Value	
LAGRIC	-3.212	-0.717	-3.212	-3.225*	I(1)
LMANU	-3.552	-1.579	-3.557	-6.874***	I(1)
DOP	-3.552	4.415**	-3.552	-8.434*	I(0)
EXR	-3.552	-2.146	-3.552	-5.305***	I(1)
IF	-3.557	-1.527*	-3.215	-3.363*	I(1)

Source: Author   Note: ***, ** and * are; 1%, 5% and 10%, respectively

Table 3

Unit root with structural break						
	Level		first difference			
Series	Test statistic	Critical value	Test statistic	Critical value	Order	Break date
LAGRIC	-2.424	-4.607	-4.995**	-4.607	I(1)	1995
LMANU	-3.141	-4.607	7.051***	-5.348	I(1)	2000
DOP	-4.815*	-4.607	-8.94	-5.348	I(0)	2012
EXR	-10.193***	-5.548	-10.596	-4.949	I(0)	1998
INF	-4.092	-5.348	-4.721*	-4.607	I(0)	2004

Note: * , ** and * show significant at % , 5% and 10% respectively**

4.3 Empirical Results using GMM techniques

The result of the effects of trade liberalization on outputs of agricultural and manufacturing sectors in Nigeria, between 1981 and 2014 using GMM is presented in Table 4. Column 1 of Table 3 provides information on the regression of agricultural sectors on other variables while the regression of manufacturing sector is reported in column 2. All the variables are at the level except manufacturing and agricultural sectors which were in their logarithm form to avoid measurement error and to provide reliable estimates.

From column 1, the coefficient of the degree of openness was positive and significant. As a result from table 4, we found out that a one unit increase in trade openness leads to approximately 3.98 per cent increase in agricultural output in Nigeria. This conforms with the a priori expectation that trade liberalization promote agricultural productivity. This implies that trade openness enhance agricultural sector's performance in Nigeria. The result is in tandem with the studies of Hye and Jafri (2011) as well as Silva, Malaga and Johnson (2014) that trade liberalization had a positive effect on agricultural production growth and eventually leads to improved agricultural productivity in Pakistan and Sri Lanka respectively. However, the result is in contrast with the finding of Anowor, Ukweni and Martins (2013) that trade openness, though significant, had a negative effect on agricultural sector's productivity. The result also shows that the magnitude of exchange rate is positive but insignificant at 5% level, suggesting that exchange rate did not contribute significantly to agricultural sector's productivity in Nigeria because a unit increase in exchange rate would lead to 0.0026 percent

increase in agricultural sector's performance. Similarly, the coefficient of inflation is positive and significant as a unit increase in inflation rate would lead to 0.57 percent in agricultural sector's output. The impact of manufacturing sector output (LMANU) was positive and highly significant at 5% level. The magnitude of the coefficient is 1.08 implying that the elasticity coefficient meaning that 1% increase in manufacturing sector's output would lead to 1.08 percent increase in agricultural sector's productivity. Insight from this suggests some level of economic linkage between the two sectors of the Nigerian economy. For instance, manufacturing sector could serve as a source of provision of fertilizer and equipment that can enhance agricultural sector's productivity. This also suggests that a well developed manufacturing sector has potential to promote agricultural sector's productivity.

Table 4: GMM result of the effect of trade liberalization on sectoral performance (1981-2014).

Independent Variables	Dependent Variables	
	LAGRIC- Agricultural Sector	LMANU- Manufacturing Sector
INTERCEPT	-1.3065***	1.216***
	(-2.964)	(3.892)
DOP	3.9803***	-3.646***
	(3.774)	(-2.978)
EXR	0.0026	-0.005***
	(1.618)	(-3.875)
INF	0.0005***	-0.005***
	(4.700)	(-3.875)
LAGRIC	-	0.922***
	-	
LMANU	1.0806***	-
	(9.662)	-
R-Squared	0.9831	0.9447
Adjusted R-squared	0.9806	0.9369
D-W stat	1.9220	1.9172
Pro (J-statistic)	0.5613	0.5537

List of instruments employed include: C, LAGRIC(-1), LMANU(-1), DOP(-1), EXR(-1),INF(-1)
t-values are reported in parenthesis for the GMM results.
Where, ***, ** and * represent level of significance at 1%, 5% and 10%.

Turning to our second model in column 2, the magnitude of degree of openness, a proxy for trade liberalization, is significant but negative in Table 4. The estimate suggests that a unit increase in trade liberalization would generate a decrease of 3.64 percent in manufacturing sector's output. Inference from this reveals that trade liberalization might not enhance manufacturing sector's output in Nigeria. This negative effect might not be unconnected with high reliance of most of the manufacturing companies in Nigeria on import for their raw materials and other resources needed for production. The result, though contrary to the expectation, might be due to the neglect of major non-oil sector since the discovery of crude

oil in the country as noted by Ezike and Ogege (2012) that a negative relationship exists between trade policy and non-oil sector in Nigeria over the period 1970 and 2010. However, the result differs from those Umoru and Eborieme (2013) on Nigeria and those of Rashid (2000) and Ahneid (2001) that trade liberalization positively affect manufacturing sector's growth in Bangladesh. Also, the results depict that the coefficient of exchange rate is negative and insignificant at 5% level. Insight from Table 3 shows that a unit increase in exchange rate would lead to 0.24% decrease in manufacturing sector output. The result is in contrasts to the finding of Asongo, Jamala and Windu (2013) that a positive and significant relationship exchange rate and manufacturing sector performance. Furthermore, the result shows that the estimate of inflation is negative but significant at 5% level. This suggests that any policy that triggers a general increase in price will reduce manufacturing sector's output in the country. The significance of inflation points to the fact that the variable is critical to the growth of manufacturing sector in Nigeria.

The impact of agricultural sector's output was positive and significant at 5% level. The magnitude of the coefficient measures the elasticity and is 0.92 which indicates that 10% increase in agricultural output would lead to 9.2 percent increase in manufacturing output. This further confirms some level of economic linkage between the two sectors. This suggests that agriculture plays a critical in the development of a vibrant manufacturing sector in the countries. For instance, agricultural sector can provide food and some raw materials to the sector.

Diagnostic Test result

Buam (2006) argues that the Hansen J-test is the most commonly used diagnostic in GMM estimation for assessment of the suitability of the model. The Hansen J-statistic tests the null hypothesis of correct model specification and valid over identifying restriction. As presented in Table 4, the Hansen test of over identifying restrictions does not reject the null hypothesis at the level of significance (p-value = 0.5613 and p-value= 0.5537) for model 1 and model 2 respectively, hence, it is an indication that the two models have valid instrumentation. Also, the value of Durbin Watson (DW) statistics suggest absence of serial correlation in the two models. Furthermore, it could be observed that in the two regression results, the test of goodness of fit measured by R-square is validated and the fact that GMM is robust for autocorrelation and heteroscedasticity largely validates the regression results.

5.0 Conclusions

It has been established that trade liberalization performs the role of engine of growth to sectors in the economy, especially through high productivity export. This study examined the impact of trade liberalization on agricultural and manufacturing sectors' performance in Nigeria between 1981 and 2014. Data on variables employed were collected from the Central Bank of Nigeria statistical bulletin. Simultaneous equation models were developed due to the nature of interdependence and joint effects between the two sectors investigated. The method of Generalized Method of Moment (GMM) was employed to overcome the problems of endogeneity associated with simultaneous equation model.

Evidence obtained in this study shows that trade liberalization had mixed effect on sectoral performance in Nigeria. While trade liberalization had positive and significant impact on agricultural sector, its impact on manufacturing sector was negative and significant. The study also found out that exchange rate exerted a positive but insignificant impact on agricultural output while the effect of inflation on agricultural output is positive and significant with the study period. Unlike the agricultural output, both exchange rate and

inflation had negative impact on manufacturing sector's output. Furthermore, finding from the study also confirmed the possibility of economic linkage between the two sectors as their magnitudes were positive and significant which suggests some level of interdependence between the two sectors. The paper suggests that government should embark on programmes and policies to promote local production and discourage importation of certain essential products for trade to have the desired impact on the performance of the two sectors and promote economic growth in Nigeria.

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