ECONOMIC OPENNESS AND INDUSTRIAL DEVELOPMENT IN NIGERIA

Dr. Lawrence Uchenna Okoye
Department of Banking and Finance, Covenant University Ota
Dr. Clem I.N. Nwakoby
Department of Bankinmg and Finance, Nnamdi Azikiwe University Awka
Emena Uchechukwu Okorie
Department of Banking and Finance, Convenant University Ota

Abstract

Over the years, governments have been confronted with the implementation of a growth-oriented economic policy. The policy challenge has often been a decision between protectionist and liberalized policies. Nigeria adopted the former up to 1986. Inability of the protectionist policy to drive sustainable growth led to a policy change, in July 1986, to economic openness or liberalization. Following the adoption of policy in 1986 under the structural adjustment programme, there have been conflicting opinions on whether or not it has supported the growth of the Nigerian economy. Against this background, this study seeks to examine the effect of the economic liberalization policy on the performance of the industrial sector in Nigeria. Specifically, the study examines the extent to which changes in some key economic indicators like exchange rate, financial deepening, trade openness and lending rate account for the trend in output performance of Nigeria's industrial sector in the post reform period. Choice of the exogenous variables was based on developments in commercial and financial sectors following the adoption of the policy. Dataover the period 1986-2014 were analyzed using econometric technique based on the Vector Error Correction Model. The study shows that rate of change in exchange rate, trade openness and lending rate exert significant negative impact on industrial output. There is also evidence of significant positive impact of financial deepening on industrial output. The Granger causality estimate shows weak causal impact of financial deepening on industrial output as well as bi-directional causation between trade openness and industrial output. There is also evidence of causal impact of industrial output on lending rate, an indication that industrial development generates demand for financial resources. The study recommends that government seeks to achieve an investment-friendly climate as well as monitor real sector operators to ensure that foreign exchange allocations are not diverted.

Introduction

Towards enhanced and sustainable economic performance, governments are often faced with the challenge of adopting either protectionist measures or liberalizing its operations. The policy debate seeks to resolve the question of whether it is the protectionist or liberalized economic policy that

promotes rapid economic growth. Economic liberalization policies have been widely acknowledged in development finance literature as a critical factor in economic performance. Basically, liberalization policies can impact economic performance through trade and/or finance flows. A major argument for trade liberalization is enhancement of efficiency and scale economy ies in the production activity. Tybout (1992) argues that entrepreneurial efforts are better rewarded through increased exposure to international competition. He posits thathigher output levels associated with liberalization lower unit costs of production, an indication of efficiency in production.

Trade liberalization, for instance, opens up new markets, beyond national frontiers, thus enabling firms to produce and reap the benefits of large-scale production. Firms seek to be more efficient in their production process in order to compete favourably with their foreign counterparts. Economic liberalization promotes the establishment of export-oriented industries to enhance the foreign exchange earning capacity of the economy and the inflow of raw materials and capital goods (including technological innovations) needed in production. Hence economic openness could lead to enhancement in technology acquisition. Grossman&Helpman (1991) argue that openness to trade can influence technological change, thereby making production more efficient and in the process enhancing productivity improvements. Adenikinju & Chete (2002) aver that opening up an economy offers immense opportunities to overcome limitations imposed by the shallow domestic markets (particularly in developing economies) which could enhance the inflow of foreign exchange required to finance essential production imports. Economic liberalization promotes the flow of factors of production, like capital (human and physical), technology and finance across national boundaries and thus enhances the scope of economic activity in the importing country. Some academics argue however that major benefits from liberalization may not derive from enhanced capital inflow into the domestic economy but from the attendant operational efficiency arising from reduction of domestic distortions and lock-in reforms (Gourinchas& Jeanne, 2002). Financial sector liberalization, on the other hand, enables interest and exchange rates to reflect relative scarcities, stimulate savings and discriminate more efficiently between alternative investments (Ndebbio, 2004). Advocates of financial liberalization like Mckinnon (1973) and Shaw (1973) argue that it promotes effective deposit mobilization and allocation of credit to efficiently managed firms that offer high returns on capital. Nwankwo (1989) argues that liberalization promotes efficiency in the financial sector by offering a platform for efficient firms to borrow from the banking system.

Economic theory postulates that openness promotes competition, supports international trade and specialization, enhances market efficiency and drives the process of economic growth and development (Fratzscher&Bussiere, 2004).Studies on the liberalization-growth nexus have produced mixed results. For instance, Edwards (1992), Krueger (1997), Rodriguez (2000) and Umoru&Eborieme (2013) show evidence of positive relationship between trade liberalization and economic performance. On the other hand, while Masike et al (2008) find evidence of a significant negative relationship between them, Harrison (1990) and Osabuohien (2006) produce mixed results. Similarly, the exact role of finance in real sector growth has remained a subject of considerable debate. While the Monetarist and Keynesian schools see a role for finance in real sector performance, the Classical schoolargues otherwise. Empirical studies in the area have further sustained the diversity of opinions in the finance-growth nexus. For instance, studies by Quinn (1997) and Edwards (2001) show evidence of significant positive relationship between financial liberalization and output growth. Studies by Edison et al (2002), Kraay (1998) and Frazscher&Bussiere (2004), however, could not confirm evidence of a significant long-run

association between financial liberalization and growth. In view of the conflicting evidence on the capacity of economic liberalization policies to promote economic growth, particularly in developing economies, this study seeks to examine the effect of the IMF supported economic liberalization policy introduced in 1986 (under the platform of the structural adjustment programme) on output performance in the Nigerian industrial sector. Studies in this area have largely approached this issue either from the point of view of trade or finance. This study adopts a holistic approach. Data over the period 1986-2013 on the research variables, sourced from the publications of the Central Bank of Nigeria, were analyzed using the technique of the vector error correction model.

Overview of the Nigerian Industrial Sector

The industrial sector of an economy is often regarded as the engine of growth and economic development largely due to its pivotal role in broadening the productive base of the economy, enhancing its revenue earning capacity, reducing the growth of unemployment and poverty as well as checking rural-to-urban migration.The industrial sector, according to the Central Bank of Nigeria (2012), consists of crude petroleum and natural gas; solid minerals (including coal mining, metal ores, quarrying and other mining activities) and manufacturing (including oil refining, cement production, food beverages and tobacco; textiles, apparel and footwear; wood and wood products; pulp, paper and publishing; non-metallic products; domestic/industrial plastic and rubber; electrical and electronics; basic metal, iron and steel; motor vehicle and miscellaneous assembly. The manufacturing sub-sector consists of large, medium, small and micro enterprises. Inability of large-scale industrialization policy to propel the growth of the industrial sector in Nigeria informed the policy shift to small-scale industrialization policy. Small scale enterprises presently maintain a very strong presence in the economy, playing a leading role in the industrial development of the country (Okafor, 2000). The sub-sector is performing at sub-optimal levels, contributing less than an annual average of 4.0 per cent of the sector's contribution to GDP over the period 1981-2013 (Central Bank of Nigeria, 2013).For instance, between 1981 and 2012, manufacturing posted its highest contribution of 38.44 per cent to sectoral share of GDP (49.70 per cent) in 1983. By 2012, contribution from manufacturing to industrial sector output (39.03 per cent) stood at a paltry 1.88 per cent (Central Bank of Nigeria, 2012).

On the other hand, crude petroleum and natural gas sub-sector which trailed behind manufacturing prior to the reform period seems to perform better in the reform period, consistently out-performing the manufacturing sub-sector since 1989, emerging both as the major source of government revenue and export item for the industrial sector. The performance of the solid minerals sub-sector suggests grossly under-exploitation or rather outright neglect. The sub-sector was barely able to contribute just over 1.0 per cent to sectoral output between 1981 and 1984. Between 1985 and 2012, solid minerals contributed less than annual average of 1.0 per cent to industrial share of national output. The sub-optimal performance of the sub-sector has been a source of concern because of its immense potentials as a major foreign exchange earner for the economy. According to Sanusi (2011), prior to the discovery of oil, sold minerals like coal and tin were major items of export for the country. Overall, between 1981 and 1986, industrial output stood at an annual average of about 48.58 per cent of the total output of the economy. Over the 28-year period (1986-2013), the performance of the sub-sector rather than be enhanced, dropped to about 45.15 per cent of GDP (Central Bank of Nigeria, 2012). The declining contribution of the industrial sector, especially the sub-optimal performance of manufacturing and solid minerals, to national output is an issue of serious concern to the authorities in Nigeria and has continued to engage the attention of academics and other stakeholders.

Review of Related Literature
With the attainment of political independence in 1960, successive governments in Nigeria initiated various development plans (between 1962 and 1985) aimed at transforming her hitherto agrarian economy to an industrialized one. The economic vision of government in this regard received an initial boost with the discovery of oil and subsequent boom of the international oil market in the early 1970's. The oil boom provided enormous amount of foreign exchange required to fast-track the process of industrialization through the adoption of the import-substitution or large-scale industrialization policy. This policy encouraged investments in gigantic and ambitious projects, oftentimes, without regard to issues of long-term financing and efficiency, leading to low productivity and hence low value addition to the economy (Okafor, 2000). Following the sudden decline in oil revenue in 1978 due to sharp drop in oil prices, some of the industrial projects were abandoned, further promoting inefficiency and waste. A characteristic feature of Nigeria's post-independence economic/industrial policy was the categorization of economic activities for foreign exchange allocation and credit ceiling control purposes as well as the implementation of government policies on interest and exchange rates. The industrial sector was accorded priority status in the allocation of credit and foreign exchange. The sector contributed about 11.3 percent to the nation's GDP during the period 1960-1970 and 29.1 per cent in the corresponding period of 1971-1980 (Sanusi, 2011). The rapid growth in industrial sector's output in the second decade of independence coincides with the era of massive inflow of foreign exchange earnings from crude oil exports. In terms of aggregate output growth, the economy grew at an annual average of 5.9 per cent during the period 1960-1970 and 5.6 per cent in the corresponding period of 1971-1980 (Sanusi, 2011). The decline in aggregate output in an era of economic windfall raised very fundamental economic issues. However, in what could be regarded as an executive appraisal of the economic policy of the era, the then Military President, General Ibrahim B. Babangida acknowledged that pegging of interest rate, contrary to expectation, did not achieve its desired goal of stimulating new investments, nor did it result in increased capacity utilization (Federal Government Budget Speech, 1987).

Following the inability of the regulated policy regime to promote rapid economic growth, Nigeria, July, 1986 adopted the IMF supported structural adjustment programme (SAP) which was targeted at restructuring and redirecting the economy, eliminating price distortions and diversifying the export base of the economy (CBN, 1995). With respect to industrial sector development, SAP was designed to encourage: (a) the accelerated development and use of local raw materials and intermediate inputs in place of imported ones (backward integration policy) (b) the development and utilization of local technology (c) promotion of export-oriented industries, and (d) liberalizing controls to facilitate greater indigenous and foreign investments (Ogbonna, 1994). Similarly, with respect to the financial sector, particularly the banking sub-sector, SAP was designed to deregulate banking, liberalize banking operations, promote competition and make banking operations more market driven (Okafor, 2011). In this regard, SAP liberalized the mechanism for interest rate management and set the stage for a transition from fixed to market determined exchange rate regime. However, SAP had unintended consequences on domestic production capacity. Three years into the implementation of SAP, President Ibrahim B. Babangida explained that adjustments in the foreign exchange rates led to generalized increase in prices because of the high import content of domestic manufacturing and thereby impacted adversely on domestic manufacturing operations (Federal Government Budget Speech, 1989).

SAP created serious liquidity squeeze which led to severe shortage of vital production inputs like machinery and equipment, industrial raw materials and spare parts (Okoh, 1994). Also, the

domestic currency depreciation attending the introduction of SAP led to sharp increase in the cost of imports, thereby raising the cost of domestic production. The high cost of production imports rendered domestic production unaffordable (Ukwu, 1994). High production costs of local industries render domestic output uncompetitive relative to their imported counterparts leading to low patronage of local products, hence low levels of capacity utilization and contribution to national output (Manufacturers Association of Nigeria, 2006).

A number of factors have been identified as impediments to the growth of the industrial sector in Nigeria. For instance, Okafor (2000) and Sanusi (2011) argue that lack of access to credit constitutes one major constraining factor to rapid small-scale industrialization. Okafor explains that small-scale enterprises in Nigeria lack the proper level and right mix of financing. Fesse (1995) argues that many small-scale enterprises with enormous potentials for growth often wither and die for lack of access to credit. Okafor (2000) further argues that public policy environment often inhibits the growth of small-scale industries because, according to him, the sector lacks effective policy cover against smuggling and dumping, often, of substandard and lowly priced goods into the country. He argues that available incentives are not only inadequate but are poorly managed.

Soludo (2006), Uche (2000) and Sanni (2009) attribute the high cost of domestic production to poor industrial infrastructure base as many industrial establishments are compelled to provide independent sources of water, electricity and in some cases access roads.

Another source of performance inhibition for the industrial sector in the post-reform period is the absence of local capacity (Ude, 1996). Ude argues that developing economies can only benefit from currency depreciation (an outcome of economic liberalization) if the productive sector has sufficient inventories of goods ready for export or have the potentiality to expand production of such goods, should their demand occur abroad as a result of the or devalued cheap currency. It is indeed doubtful if Nigeria has such capacity and, worse still, Nigerians have an insatiable appetite for foreign goods even at their higher prices. The net impact therefore is ceaseless outflow of foreign exchange that should have sustained an enhanced and vibrant domestic real sector.

Appraising the performance of the real sector in the post-SAP era, Osisioma (1998) avers that after 12 years of restructuring, the fundamental defects of the Nigerian economy still persist as the economic base remains import-oriented with weak industrial and technological base.

Empirical studies on the economic liberalization-output nexus, particularly in developing economies, have produced mixed results. While some studies produce evidence of significant positive impact of liberalization policy on output growth, others show evidence that economic liberalization has either contracted output growth or has no relationship with output performance. For instance Umoru&Eborieme (2013) examined the effect of trade liberalization on industrial growth in Nigeria using annual data on industrial output growth, capital stock, exchange rate, trade liberalization. They adopted the co-integration and error correction analytical techniques and find a significant positive impact of trade liberalization on industrial output growth in Nigeria.

Kim (2000) investigated the impact of trade liberalization on productivity, competition and scale efficiency in Korea. He finds evidence of positive but not significant impact of liberalization on productivity. He attributes the low level of impact toshallowness of the liberalization policy in Korea.

Oyovwi&Eshenake (2013) studied the effect of financial liberalization on economic growth in Nigeria, adopting the methodology of the vector error correction technique. Annual data on GDP, financial depth (proxied by the ratio of M2 to GDP), government policy (represented as the ratio of total trade to GDP) and investment to GDP were employed for the study. They find that financial depth exerts a significant positive impact on economic growth while government policy or trade

openness and investment-GDP ratio impact growth significantly but in the opposite (negative) direction. Afaha & Njogo (2012) examined the impact of trade openness on the Nigerian economy using data over the period 1970-2010. Employing the technique of the ordinary least squares (OLS), they find a strong positive impact of trade openness on growth. Udegbunam (2002) studied the effect of trade openness on industrial output growth in Nigeria using data for the period 1970-1997. He finds that trade openness is a major determinant of industrial output growth in Nigeria. Also, Bakare&Fawehinmi (2011) investigated the impact of trade openness on industrial output. They find that public domestic investment, savings rate, capacity utilization and infrastructure have negative impact on industrial output performance in Nigeria.

Masike et al (2008) studied the effect of trade liberalization on rubber production in Nigeria using data for the period 1960-2004. They find evidence that trade liberalization reduced the growth of rubber production during the period. Saibu (2011) employed the VAR analytical technique in estimating the effectiveness of trade policy shocks on sectoral and aggregate output growth. He finds that trade openness has negative impact on both sectoral and aggregate output. The result further shows that monetary policy shocks have significant positive effects on manufacturing, service and industrial sectors. Also, he finds that fiscal policy exerts a significant positive impact on the agricultural output. Harrison (1990) examined the effect of trade liberalization in Cote d'Ivorie using a sample of 287 firms. The study produced mixed results. It shows evidence of positive impact for some firms and negative impact for some others. Mixed results were also documented in Osabuohien (2006) for Nigeria and Ghana. The study employed annual data for both countries covering the period 1975-2004. Data were processed using the co-integration and error correction models.

Edwards (1992) investigated the relationship between trade orientation, distortions and growth in developing economies. He finds evidence of positive relationship between trade openness and economic growth. Krueger (1997) examined the relationship between trade policy and economic development. The study documents evidence of positive relationship between economic growth and trade openness. Also, Rodriguez (2000) studied the effect of trade openness on the output performance of an open economy using 1996 data from 106 countries. Employing the methodology of the ordinary least squares estimation technique, he finds strong empirical support for a positive relation between per capita GDP and trade openness.

Methodology
Quantitative research technique based on ex-post facto research design was adopted for the study. It involves the use of available data on research variables to explain the extent to which they relate to the event. Data on exchange rate, trade openness, inflation rate, and financial deepening (sourced from the publications of the Central Bank of Nigeria) were used to explain the capacity of the industrial sector in Nigeria to contribute to the growth of the economy over the period 1986-2013. The study utilized econometric model to determine the effect of economic liberalization on industrial output performance in Nigeria. The time series properties of the data as well as their short and long-run dynamics were examined. The Augmented Dickey-Fuller (ADF) and Phillip Perron (PP) unit root tests were used to test for stationarity of data. Johansen & Jusellius (1990) method was adopted in testing for co-integration while the vector error correction mechanism (VECM) was used to capture the short and long-run relationship between endogenous and exogenous variables.

Model Specification
The model adopted for this study was derived from a similar work by Oyovwi & Eshenake (2013) with slight modifications to suit our purpose. Oyovwi & Eshenake (2013) used financial depth (proxied by M_2/GDP), trade openness and investment to GDP ratio to explain growth rate of GDP in Nigeria using the methodology of the vector auto regression (VAR) technique. Our model however, expressed output performance as a function of exchange rate, financial deepening, lending rate and trade openness. The implicit representation of the model is expressed as:

OUTP= f (EXRV, FINDEP, OPNS, LR) …………………… equation (1)
Where;
OUTP = industrial output to GDP
EXRV = exchange rate changes
FINDEP = financial depth
OPNS = trade openness
LR = lending rate
The explicit form of the model in equation (1) is expressed as:
$OUTP_t = \beta_0 + \beta_1 EXRV_t + \beta_2 FINDEP_t + \beta_3 OPNS_t + \beta_4 LR_4 + \varepsilon_t$………equation (2)
Where;
β_0 = constant term
$\beta_1 ... \beta_4$ = coefficients of the exogenous variables
ε_t= error term

Variables/Proxies
Industrial Output: This is the aggregate output from crude petroleum and natural gas, solid minerals and manufacturing sub-sectors in a given year expressed as a ratio of the nation's GDP.
Exchange Rate: This is the price at which a given unit of the domestic currency exchanges for one unit of a foreign currency. For our purpose in this study, exchange rate volatility expressed as rate of change over successive periods was adopted as proxy.
Financial Deepening: This is a measure of accessibility to financial services, expressed in this study as ratio of credit to private sector (CPS) to GDP.
Trade Openness: This measures the extent to which restrictions to trade are relaxed. It is proxied by the ratio of total foreign trade to GDP
Lending Rate: This is the rate at which the deficit units borrow from the banking sector. It is determined in this study as the average of prime and maximum lending rates.

A priori Expectations
It is expected that positive relationships exist between industrial output, financial depth and trade openness while a negative relationship is expected between industrial output, inflation rate and change in exchange rate. Hence this can be mathematically represented as $\beta_1<0$, $\beta_2>0$, $\beta_3>0$ while $\beta_4<0$.

Data Analysis and Interpretation
Unit Root Test Result
Table 1a: Augmented Dickey Fuller at Levels and first difference

Variable	ADF Test @Levels	ADF Critical values at 5% level	Test @ First Difference	ADF Critical values at 5% level	Remark
OUTP	-0.209752	-3.004861	-4.500899	-3.004861	Integrated of order 1
EXRV	-4.774923	-2.971853	-5.233441	-2.986225	Integrated of order 1
FINDEP	-1.402722	-2.971853	-5.277884	-2.9762663	Integrated of order 1
OPNS	-2.303953	-2.971853	-4.489529	-4.489529	Integrated of order 1
LR	-4.341230	-2.971853	-5.834903	-5.834903	Integrated of order 1

Source: Author's computation, 2016

Table 1b: Phillip Perron (PP) Unit Root Test at Levels and first difference

Variable	PP Test @Levels	PP Critical values	Test @ First Difference	PP Critical values	Remark
OUTP	-1.54421	-2.971853	-7.209166	-2.976263	Integrated of order 1
EXRV	-4.78858	-2.971853	-17.53043	-2.976263	Integrated of order 1
FINDEP	-1.445951	-2.971853	-5.287661	-2.976263	Integrated of order 1
OPNS	-2.257207	-2.971853	-4.386488	-2.976263	Integrated of order 1
LR	-4.337654	-2.971853	-12.90099	-2.976263	Integrated of order 1

Source: Author's computation, 2016

The result of the unit root presented in tables 1a and 1b shows that for both Augmented Dickey Fuller and Phillip Perron tests, only exchange and lending rates show stationary trend at their levels. However, all the variables became stationary at their first difference.

Table 2: Co integration result

Hypothesized No. of CE(s)	Eigen Value	Trace Statistic	0.05 Critical Value	Prob.**	\Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.803825	97.05068	69.81889	0.0001	43.97623	33.87687	0.0023
At most 1 *	0.676819	53.07445	47.85613	0.0149	30.49770	27.58434	0.0205
At most 2	0.425171	22.57676	29.79707	0.2675	14.94941	21.13162	0.2925
At most 3	0.224781	7.627343	15.49471	0.5061	6.874476	14.26460	0.5041
At most 4	0.027499	0.752868	3.841466	0.3856	0.752868	3.841466	0.3856

Source; Author's computation, 2016

The Johansen &Jusellius (1990) was used to ascertain co-integrating property of the model. Co-integration was determined by comparing the trace and maximum eigen value statistics against the critical value at 5 per cent. The co-integration result for trace and maximum eigen statistics rejects the null hypothesis of no co-integrating vectors at 5 percent significance level. The result shows evidence of 2 co-integrating equations for both statistics. Thus there is evidence that the components of the do not show a tendency to drift apart.

Table 3: Correlation Analysis

	OUTP	EXRV	LR	FINDEP	OPNS
OUTP	1.000000				
EXRV	0.428155	1.000000			
LR	0.204950	-0.002970	1.000000		
FINDEP	-0.554187	-0.324338	-0.083194	1.000000	
OPNS	-0.171283	-0.473021	0.142549	0.611644	1.000000

Source; Author's computation, 2016

The correlation analysis shows positive relationships between industrial output and exchange and lending rates. The result also financial deepening and trade openness correlate negatively with industrial output in Nigeria.

Table 4: Vector Error Correction Analysis (Long-run estimate)

Co integrating Eq:					
CointEq1	C	EXRV(-1)	FINDEP(-1)	OPNS	LR
Coefficients	-31.72847	-0.417382	0.448004	-0.154839	-0.361399
Standard Error		(0.04192)	(0.03906)	(0.03945)	(0.07246)
T-Statistic		[-9.95692]	[11.4707]	[-3.92498]	[-4.98779]

Source: Author's Computation, 2016

The long-run estimate from the vector error correction model shows evidence significant negative impact of exchange rate on industrial output. The estimated co-efficient for exchange rate shows that a unit increase in exchange rate fluctuation leads to a corresponding decrease in output by 0.147382 units in the long-run. This resultconforms to a priori expectation of negative association between exchange volatility and output performance.

Financial deepening shows negative significant negative effect on industrial output performance. This suggests that finance did not play any significant role in output determination within the scope of the study. This result does not conform to *a priori* expectation of significant positive relationship but can be explained partly by diversion of credit away from real sector operations to areas that could return quick profits to compensate for the prevailing high rates of interest. This result supports the finding in Oyovwi and Eshanake (2013).

Evidence from the estimated result for economic openness shows a significant negative effect on output performance. This result shows that a unit increase in openness will decrease output by 0.154839 units. The inflation rate co-efficient (-0.139198) shows an inverse but not significant impact of inflation on output. This result aligns with our *a prior* expectation and finds support in the findings of Masike et al (2013), Oyovwi & Eshanake (2008).

Empirical result lending rate shows its significant positive effect on industrial output. The result indicates that a unit increase in lending rate reduces output by 0.361399 units. Though this result does not conform to *a priori* expectation, it supports the Mckinnon (1973) and Shaw (1973) theory which posits that financial liberalization promotes real output growth.

Table 5: Vector Error Correction Estimates (Short run Analysis)

Error Correction:					
	ECM (-1)	D(EXRV)	D(FINDEP)	D(OPNS(1))	D(LR(1))
Coefficient					
	-0.903915	2.076308	0.210676	-2.316449	0.025534
Standard Error					
	(0.48674)	(0.93656)	(0.56976)	(0.92750)	(0.41200)
T-Statistic					
	[-1.85709]	[2.21695]	[0.36977]	[-2.49751]	[0.06198]

F-statistic	2.488532				

R-squared	0.678009		Adj. R-squared	0.405556

Source: Author's Computation, 2016

The short-run estimate shows that exchange rate and openness have significant effect on industrial output. However, while exchange rate impacts positively on industrial output, trade openness shows negative impact. The result also shows that financial deepening and lending rate show non-significant positive impact. The error correction model captures the speed of adjustment of the model to short-run disequilibrium conditions. It shows a high speed of adjustment to short-run shocks of about 90 per cent. Hence the short run deviations from equilibrium position are re-adjusted to maintain balance in the system by the variables in the long-run.

The co-efficient of determination (R^2) for the dynamic model (0.678) shows that the included variables jointly explain about 68 percent of variations in industrial output. The result of the adjusted R^2 (0.406)which controls for incremental variables to the model, shows that about 40.6 percent of the total variations in output is traced to the changes in the independent variables.

Table 6: Granger Causality Analysis
Pairwise Granger Causality Tests
Date: 02/01/16   Time: 14:44
Sample: 1986 2014
Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
EXRV does not Granger Cause OUTP	27	1.30058	0.2925
OUTP does not Granger Cause EXRV		1.17258	0.3282
FINDEP does not Granger Cause OUTP	27	1.80025	0.1888
OUTP does not Granger Cause FINDEP		0.56520	0.5763
OPNS does not Granger Cause OUTP	27	5.84856	0.0092
OUTP does not Granger Cause OPNS		2.68549	0.0905
LR does not Granger Cause OUTP	27	0.15984	0.8533
OUTP does not Granger Cause LR		3.41419	0.0511

Source: Author's Computation, 2016
The Granger causality presented in table 6 shows evidence of bi-directional causality between trade openness and industrial output.This implies that changes in these variables induce in each other. The result, however, did not produce evidence of causation between exchange rate and output. The result also shows a weak causal impact from financial deepening to output. Weak causal impact of financial deepening is an indication of insufficient depth of the Nigerian banking sector. There is also evidence of uni-directional causation from output to interest rate on bank credit. This result suggests growth in industrial output initiates changes in lending rate.

Summary, Conclusion and Recommendations
The finding from this study provides empirical support for long-run relationship between selected variables and industrial output growth in Nigeria. The long-run estimate shows that all the variables have significant impact on industrial output in Nigeria. However, while exchange rate, openness and lending rate show negative impact, financial deepening sows a positive impact on industrial performance. The short-run estimate shows a significant positive impact of exchange rate and a positive non-significant impact of financial deepening on output. It also shows that while openness has a significant negative effect on industrial output, lending rate shows a non-significant positive impact.
The Granger causality estimate shows a weak causal impact of financial deepening on industrial output as well as bi-directional causation between trade openness and industrial output. It also shows evidence of uni-directional causality from industrial output to lending rate. There is no

evidence of causal impact between exchange rate and industrial output within the scope of the study.

From the above results, the study concludes that economic openness significantly impacts on the operations of the industrial sector in Nigeria.

It is recommended that the economy be diversified to boost its foreign exchange earning capacity in order to reduce the negative impact of exchange rate volatility on industrial production.

There should be strong credit support for the private sector to enhance its output performance in Nigeria. This could be achieved through the establishment of special funds from which investors can borrow at concessionary rates for real sector development. Government should give serious attention to infrastructural development so as to lower the cost of banking operations as an incentive for lower interest rates.

The monetary authorities should also review credit policies with the aim of reducing bureaucratic practices that hinder easy access to credit as well as strongly emphasize monitoring and supervision of the credit portfolio of lending institutions.

Finally, policy measures that foster trade integration between Nigeria and the international community should be implemented with some restraint in order not to stifle domestic production. Export promotion strategies should be intensified to enhance trade balance. Local content in production should also be promoted.

References

Adenikinju, A.F. &Chete, L.N. (2002), Trade liberalization, market structure and productivity in Nigeria, *African Economic Research Consortium (AERC)*.

Afaha, J.S. &Njogo, B.O. (2012), Trade openness and its effect on the Nigerian economy, *Arabian Journal of Business and Management review*, 2 (1).

Bakare, A.S. &Fawehinmi, F.O. (2011), Trade openness and its impact on Nigeria's non- oil industrial sector, *Economics and Finance Review*, 1 (5): 57-65.

Central Bank of Nigeria (1995), Monetary policy in Nigeria, *CBN Briefs, Research Dept Series,* 95 (3)

Central Bank of Nigeria (2012), *Statistical Bulletin*, Abuja: Central Bank of Nigeria, 23

Edison, H., Levine R., Ricci, L., &Slok, T. (2002), International financial integration and economic growth, *Journal of International Monetary and Finance.*

Edwards, S. (2001), Capital mobility and economic performance: Are emerging economies different?. Technical Report, *NBER Working Paper*, 8076.

Edwards, S. (1992), Trade orientation, distortions and growth in developing economies, *Journal of Development Economics*, 39 (1):31-57

Federal Government of Nigeria Budget Speech (various issues).

Fesse, A.A. (1995), Financing of small and medium scale enterprises: The capital market option and benefits of public quotations, Paper presented at workshop on Financing of Public Projects through the Stock Exchange, organized by the Nigerian Stock Exchange, Makurdi, Sept. 29.

Fratzscher, M. &Bussiere, M. (2004), Financial openness and growth: Short-run gain, long-run pain, *ECB Working Paper,* 348

Gourinchas, P. & Jeanne, O. (2002), The elusive gains from international financial integration, *Review of Economic Studies*, 3: 715-741.

Grossman, G.M. &Helpman, E. (1991), Trade knowledge spillovers and growth, *European Economic Review*, 935

Harrison, A. (1990), Productivity, imperfect competition and trade liberalization in Cote d' Ivorie, *World Bank PPR Working Papers* 1 WPS 451.

Johansen, S. &Juselius, K. (1990), Maximum likelihood estimation and inference on co-integration - with application to the demand for money, *Oxford Bulletin of Economics and Statistics,* 52*:*169-210

Kraay, A. (1998), In search of the macroeconomic effects of capital account liberalization, *World Bank Manuscript.*

Krueger, A. (1997), Trade policy and economic development: how we learn; *American Economic Review,* 87 (1): 1-22.

Manufacturers Association of Nigeria (2006), *Economic Review*, Lagos: Manufacturers Association of Nigeria

Mckinnon, R. I. (1973), *Money and Capital in Economic Development*, Washington DC: The Brookings Institute

Masike, C.S., Groh, D.Y. &Owie, O.E.D (2008), Analysing the effort of trade liberalization policy on Nigerian rubber industry, *Journal of Agriculture and Social Science*, 4: 132-134.

Ndebbio, J. E. (2004) Financial deepening, economic growth and development: Evidence from selected Sub-Saharan African Countries, Research Paper 142, *African Economic Research Consortium*, Nairobi, Kenya

Nwankwo, G.O (1989), *Nigerian Financial System*, Macmillan.

Ogbonna, M.N. (1994), Structural adjustment through export promotion: Where are the marketers? *The Nigerian Journal of Economic and Social Studies,*36

Okafor, F.O. (2000), Micro-credit: an instrument for economic growth and balanced development, *African Banking and Finance Review*, 1 (1): 31-42.

Okafor F.O. (2011*), Fifty years of banking sector reforms in Nigeria (1960-2010)- past lessons: future imperative,* First Bank of Nigeria Research Chair Report, Banking and Finance, NnamdiAzikwe University, Awka. Enugu: Ezu Books Limited.

Okoh, S.E.N. (1994), Implications of public expenditure reduction under the structural adjustment programme, *The Nigerian Journal of Economic and Social Studies,* 36.

Osabuohien, E.S.C. (2006), Trade openness and economic performance of ECOWAS members – Reflections from Ghana and Nigeria, *African Journal of Business and Economic Research*, 2 (2): 217-219.

Osisioma, B.C. (1998), ECODEV accounting in Nigeria: Addressing issues of national growth and development, *Journal of the Management Science*, 1.

Oyovwi, O.D. &Eshanake, S.J. (2013), Financial openness and economic growth in Nigeria: A vector error correction approach, *African Research Review*, 7 (4), Serial No. 31:79-92.

Quinn, D. (1997), The correlates of change in international financial regulation, *American Political Science Review*, 91 (3): 531-551.

Rodriguez, C.A. (2000), On the degree of openness of an economy, sourced from www.coma.edu.ar./u/car/Advantage. PDF, April 10, 2015.

Saibu, M.O. (2011), Sectoral output responses to trade openness, oil price and policy shocks in Nigeria: A CVAR approach, *Journal of Social and Development Sciences*, 2: 48-59.

Sanni, G.K. (2009), Global financial crisis and African countries: Impact and new perspectives for development, *Bullion*, 33 (3): 16-31.

Sanusi, L.S. (2011), Growing Nigeria's real sector for employment and economic development: The role of Central Bank of Nigeria, Paper delivered at the inaugural lecture in honour of Prof. W. OkefieUzoaga at the University of Nigeria, Enugu Campus, July 12.

Shaw, E.S. (1973), *Financial Deepening in Economic Development*, Oxford University Press, Oxford.

Soludo, C.C. (2006), Can Nigeria be the China of Africa? Paper delivered at the Founder's Day of the University of Benin, November 23.

Tybout, N.S. (1992), Openness, productivity and growth: What do we really know?,*The Economic Journal*, 108: 383-398.

Uche, C.U. (2000), Poverty alleviation programmes in Nigeria: Past, present and future, *Nigerian Journal of Banking and Finance,* 3: 1-24.

Ude, M.O. (1996), *International trade and finance*: Enugu; John Jacobs Classic Publishing Company.

Udegbunam, R.I. (2002), Openness, stock market development and industrial growth in Nigeria, *Pakistan Development Review*, 41 (1):69-92.

Ukwu, I.U. (1994), Industrial and economic development in Nigeria: The significance of the structural adjustment programme, *The Nigerian Journal of Economic and Social Studies*, 36.

Umoru, D. &Eborieme, M. (2013), Trade liberalization and industrial growth in Nigeria, *Journal of Poverty, Investment and Development*, 1: 148-156.