Globalization and Manufacturing Sector Growth in Nigeria

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Abstract

The paper examined the impact of globalization on manufacturing sector growth in Nigeria. The objectives of this study were to examine how trade intensity index, portfolio investments and trade restrictions impact on the growth of the manufacturing sector in Nigeria. Data collection covered the period of 1980 to 2016 and the sources comprise CBN statistical Bulletin and United Nations World Bank Index. The methods employed in analyzing the data are test for Phillips-Perron unit root, Johansen co-integration and parsimonious error correction model (ECM). The results of the unit root test indicated that all the variables were stationary at first difference. The Johansen co-integration test results disclosed that the variables are co-integrated. The error correction model result showed that manufacturing sector growth lagged for one period is positively related to current growth of the manufacturing sector. Also, trade intensity index has significant positive impact on manufacturing sector growth. Thus, a percentage increase in trade intensity index induces 0.145 percent increase in manufacturing sector growth. On the other hand, trade restrictions exerted significant negative impact on manufacturing sector growth. Thus, one percent increase in trade restrictions in the form of tariffs, decreases manufacturing sector growth by 0.004 percent. Again, portfolio investment exerted a negative and insignificant impact on manufacturing sector growth. The ECM (-0.0229) revealed that convergence of the model is possible at a speed of 2.29 percent. It is obvious from these results that combinations of the underlying explanatory variables are reliable sources of predicting changes in manufacturing sector growth. Therefore, the study recommended that policy makers should ensure that Nigeria leveraged on the gains of globalization by focusing on producing and exporting manufactured goods in which it enjoins comparative advantage and cost effectiveness.

Keywords: Globalization, Growth, Manufacturing Sector, Trade intensity and Trade restrictions

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Background to the Study

The emphasis and aim of every nation in the world is to achieve some set of macroeconomic objectives aimed at improving the standards of living of its citizens as well as growth and development of the economy. One of the means of achieving this is through international interaction with the global economies. Thus, from the financial perspectives, globalization is the integration of country's local financial system with those of the international financial markets and institutions (Schmukler and Zoido – Lobaton, 2001). Following the globalization trend, Nigeria has been liberalizing its economy. But the impact of globalization on the development process of the manufacturing sector has aroused closer and more critical examination of the ruins of globalization as a result of the persistent failures of the sector to contribute meaningfully to the growth and development of the economy. This is because a vibrant manufacturing sector has been acclaimed as a sure means of boosting economic growth and raising the standard of living. Nigeria as the giant of Africa has been regarded as the nation blessed with abundant resources; human and material. However, the underutilization of these potentials has amplified negative effects such as poverty and low level of standard of living.

In the modern world, the manufacturing sector is described as the basis on which the nation's economic efficiency is compared, ranked and determined. However, with the exploitation of crude oil in Nigeria in the early 1970s, the nation shifted from agriculture as a base for industrial development and placed a heavy weight on crude oil production. Not only has this jeopardized its economic activities, but also aggravated the nation's level of unemployment because other sectors such as the manufacturing sector have been neglected. Nevertheless, the well-known developed economies have over the years adopted some initial tactical and favourable measures in pursuit of their economic growth and development through massive diversification of their resources into the manufacturing sector to enhance their Gross Domestic Product (GDP) capacity. Manufacturing activities declined in Nigeria in the 1980s, as most companies were affected as a result of the global economic meltdown that further led to the closure of the industries as unfavourable conditions lingered,

According to Okowa (2005), openness does not come without costs. It tends to reduce the market power of domestic firms and increase competitive pressure on them, eventually forcing some of them out of business. In the longer run, the country may become more efficient and thus enjoy higher growth rates and lower poverty. But in the short run, the inability to compete and the presence of labour market may hamper the reallocation of labour between non-tradable and tradable sectors that a reduction in tariff normally entails.

A critical examination of the Nigerian economy shows that the contribution to world trade is still very low because their exports are predominantly primary products which do not contribute much to Gross Domestic product when compared to trade on manufactured or finished goods (Nabine, 2009). Similarly, the impact of some determinants of globalization such as trade intensity index, portfolio investment stock and trade restrictions in relation to the manufacturing sector have not been judiciously felt on the economy. These serve as obstacle to strengthening the productive base, especially of agriculture, industry and manufacturing in order to make them export-oriented (Obadan, 2001). In this regard, the place of Nigeria in the
globalization agenda requires some in-depth study. To begin with, Nigeria is economically weak due to inadequate domestic economic capacity and social infrastructure needed to boost the country’s productivity, growth and competitiveness. Secondly, the economy is made weaker by mono-cultural dependency and unfavourable terms of trade in its export trade as well as excruciating debt and debt service burdens. Deregulation of domestic markets, removal of subsidies on public goods and services and their opening to competition, are also features of the current global order.

According to Aluko and Alimi (2004), the manufacturing sector of Nigeria is majorly characterized by low capacity utilization which averaged 30% in the last few decades as well as low and declining contribution to the national output; which averaged 6%. It further possesses such characteristics as the dominance of substantial goods which are unable to compete internationally and as such leading to the accumulation of large inventories of unsold goods which in turn leads to declining and negative growth rate. Also, the existence of poor infrastructure arising from lack of funds due to the poor capitalization of the financial market has resulted in poor incentives implementation especially that of exports. Thus, the Nigerian manufacturing sector can be described in the past two decades as that which is experiencing deindustrialization. Hence, it is inevitable to determine whether an industry operating under the manufacturing sector can work well with the rigours and dictates of globalization.

Based on the above situation the study tends to answer the following research questions: what are the impacts of globalization vis-à-vis trade intensity index, portfolio investment stock and restrictions on trade on manufacturing sector output in Nigeria. Thus, the broad objective of this study is to examine the impact of economic globalization on manufacturing sector growth in Nigeria. The specific objectives are to: examine the impact of trade intensity index on manufacturing sector growth in Nigeria; determine the impact of portfolio investment stock on manufacturing sector growth in Nigeria; and examine the impact of restrictions on trade on manufacturing sector growth in Nigeria. The paper is divided into five sections namely: introduction, literature review, methodology, results and discussion; and section five centres on conclusion and recommendations.

Literature Review

Economic theory predicts that countries that adopt a more open stance towards globalization enjoy higher growth rates than those that close their economies to trade (Sachs and Warner, 1995; Frankel and Romer, 1999; Hill, 2004; Obadan, 2010). This idea brings to light that openness of an economy to the world economies has with it an unprecedented increased financial and capital flow among other changes that the interconnectivity possesses. Opening of an economy makes better and superior technology from abroad available to domestic firms. This presupposes a better productive capacity for domestic manufacturing industries (Akinmulegun and Oluwole, 2014).

Conceptually, globalization is the integration of national economies in the global level by the development of international movements of factors of production. On the other hand, Loto(2012) defines manufacturing sector growth as increase in production growth in relation
to import and export expansion, creating foreign exchange earnings as well as decreasing the rate of unemployment and increase per capita income consumption pattern. Theoretically, Knickerbocker (1973) in his oligopolistic reaction theory opined that firm invests in one country in order to increase its market share. Immediately thereafter the other rival oligopolistic firms invest in that country in order not to lose their market shares. This kind of investment is also known as “Follow-the-leader”. Besides as firms avoid ambiguities and risks, they wait for an investment of a leader firm before themselves and its consequences and then they invest. This constitutes the reasoning of follow-the-leader theory. The relevance of the oligopolistic reaction theory to the study is that it advocate for economic of scale which a firm enjoin vis-à-vis investment in another country through globalization. But the theory fail to state the advantage of the host country enjoin through globalization.

Empirically, Olotu (2001) used the Hicksher Ohlin model to analyze link between globalization and employment opportunities in Nigeria using Ordinary Least Square method. The empirical results showed that none both export and imports does not have a direct effect on labour demand. Thus, globalization has a negative effect on labour. In like manner, Umaru, Hamidu and Musa (2013) used average growth rate method to examine the effect of globalization on the performance of the Nigerian economy with emphasis in manufacturing sector from the year 1962 to 2009. They found out that globalization affected manufacturing industry and solid mineral sectors negatively, but it affects the agriculture, transportation and communication sectors positively.

Rasaki, Hakeem and Ologunla (2013) used Solow growth model to investigate the nexus between globalization and economic growth. It was shown that inflation plays a very significant factor if the Nigerian economy is to enhance its economic growth and her volume of exports. Hence for it to be among the top countries of the world, the government should guide it’s fiscal and monetary policies in other to enhance the industrial base of the country.

Loto (2012) used pooled data to examine economic globalization and the manufacturing sector performance in the Nigerian economy. The result indicates that the global economic meltdown has insignificant effect on the manufacturing sector of the Nigerian economy. Also, Meraj (2013) used Granger causality test to analyze the connection between the trade gap and economic growth in Bangladesh between the years 1871 and 2005. He found out that globalization has positive effects on developing countries’ (like Bangladesh's) trade and economic growth.

Tamuno and Edoumiekumo (2012) examined the impact of globalization on the Nigerian industrial sector with the use of co-integration and Error Correction Mechanism. Co-integration test result showed existence of long run relationship among the variables in the model. The result of the error correction model for short run dynamics showed that external debt, gross capital formation, nominal exchange rate and degree of openness have negative impact on the Nigerian industrial sector; while foreign direct investment has positive impact on industrial output in Nigeria. Also, Ray (2012) analyzed if there is a causality connection between globalization and economic growth in India by using the Granger causality test. He
found out that there is a mutual causality connection between globalization and economic growth.

Acikgoz and Mert (2011) analyzed the causality connection between economic, social and political globalization and economic growth in Turkey from 1970 to 2008 by using the Auto-Regressive Distributes Lag (ARDL). They found that there is no causality connection from economic globalization and economic growth but there is a causality connection between social globalization, political globalization and economic growth.

Ebong (2014) also conducted a research on globalization and the industrial development of Nigeria from 1960-2010 using the Engle-Granger two-step and Johansen co-integration tests as well as the vector auto regressions technique. Findings clearly showed that globalization had significant impacts on industrial development in Nigeria. Specifically, trade openness had a positive influence on industrial development.

**Methodology**
The study adopted the econometric method of unit root test, co-integration test, and the Error Correction Method Approach. The Philips-Perron unit root test was employed as a test of stationary of the time series data, while the Co-integration was used to test for long run equilibrium relationship among the variables in the model. The ECM was used to adjust the pitfall in the short run analysis to long run equilibrium relationship. Furthermore, the ECM was exposed to some post-estimation tests in order to affirm the validity of the model.

Time series data was used for analysis. The variables adopted in this paper include manufacturing sector growth (MSG) as the dependable variable, trade intensity index (TID), portfolio investment stock (PIV) and restrictions on trade (TRT) as the independent variables. The data was sourced from Central Bank of Nigeria (CBN) statistical bulletin and the United Nations World Bank Development Indicators (2016).

The functional relationship between globalization and manufacturing sector growth in Nigeria was established as:

\[
MSG = f(TID, PIV, TRT) 
\]

(1)

The linear form of the model was stated thus:

\[
MSG = \beta_0 + \beta_1 TID + \beta_2 TRT + \beta_3 PIV 
\]

(2)

Where, MSG is Manufacturing sector growth, TID is Trade intensity index, TRT is Restrictions on trade, PIV is Portfolio investment stock, \(\beta_0\) is Intercept parameter and \(\beta_1, \beta_2, \beta_3\) are Slope parameters

On the apriori, \(\beta_1 > 0, \beta_2 < 0, \beta_3 > 0\),

**Unit Root Test**
The study used the Phillips-Perron (PP). The study examined the data to determine if the variables are non-stationary and to which order they are integrated (Asteriou and Hall, 2011).
However, a non-stationary series can be made stationary by taking the lag of the series (trend stationary process) or taking the difference of the series (difference stationary process). The Phillips Perron (PP) test is estimated by the following regression:

$$\Delta Y = \alpha + \beta t + pY_t + \varepsilon_t$$  \hspace{1cm} (3)

The PP test is verified by the t-value associated with the estimated coefficient of $p$. The series are to be stationary if $p$ is negative and significant. The test is to be performed for all the variables where both the original series and the differences of the series are to be tested for stationary.

Co-integration Test

The basic idea behind co-integration is that if, in the long-run, two or more series move closely together, even though the series themselves are trended, the difference between them is constant. It is possible to regard these series as defining a long-run equilibrium relationship, as the difference between them is stationary (Hall and Henry, 1989). A lack of co-integration suggests that such variables have no long-run relationship: in principal they can wander arbitrarily far away from each other. The maximum-likelihood test procedure established by Johansen and Juselius (1990) and Johansen (1991) was employed. The decision rule is that in an appropriate level of significance, if TRACE-statistics value is greater than the critical value, the null hypothesis is rejected; if otherwise, the null hypothesis is accepted. The hypothesis indicates the number of co-integrating equation(s) and the usual levels of significance is 5 percent. Alternatively, the decision rule to reject the null hypothesis is if the probability (p-value) is less than 5% (0.05). Otherwise, we do not reject.

Error Correction Model (ECM)

The purpose of the ECM is to indicate the speed of adjustment from the short-run equilibrium to the long-run equilibrium state. The greater the co-efficient of the parameter, the higher the speed of adjustment of the model from the short-run to the long-run. The error correction model (ECM) of equation (2) is utilized to reconcile the short-run dynamics with long-run equilibrium. The error correction model is formalized as: variables. The unit root model is presented thus:

$$\Delta MSG_t = \beta_0 + \sum_{i=1}^{m} \beta_i \Delta MSG_{t-i} + \sum_{i=1}^{m} \beta_i \Delta TID_{t-i} + \sum_{i=1}^{m} \beta_i \Delta TRT_{t-i} + \sum_{i=1}^{m} \beta_i \Delta IV_{t-i} + \phi ECM_t + U_t$$

Where; $\beta_0$ is Slope parameters, $\beta_1, \beta_1$ are dynamic coefficients of the regressors, $m$ is lag length, $\phi$ is Coefficient of ECM lagged for one period, which captures the speed of adjustment and $U$, is Random variable.

Post-Estimation Tests

The ECM presented was exposed to some post-estimation tests in order to affirm the pre-estimation tests and as well as certain if the estimated model is valid for policy. Thus, the post-estimation tests focused mainly on the key econometrics problems, especially autocorrelation, heteroscedasticity and normality of the residuals.
Results and Discussion
4Unit Root Test Result
The test for unit root was carried out at levels and 1st difference using Philips-Perron approach as presented in Table 1.

Table 1: Philipp Peron (PP) Unit Root Test Results

<table>
<thead>
<tr>
<th>Variables</th>
<th>PP Test Results at Levels</th>
<th>PP Test Results at Order One</th>
<th>Stationary Level</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Adjusted t-stat</td>
<td>Critical value (5%)</td>
<td>Adjusted t-stat</td>
</tr>
<tr>
<td>MSG</td>
<td>-0.446</td>
<td>-2.946</td>
<td>-4.101</td>
</tr>
<tr>
<td>TID</td>
<td>-2.598</td>
<td>-2.945</td>
<td>-16.785</td>
</tr>
<tr>
<td>TRT</td>
<td>-1.755</td>
<td>-2.946</td>
<td>-9.064</td>
</tr>
<tr>
<td>PIV</td>
<td>-2.891</td>
<td>-2.957</td>
<td>-5.657</td>
</tr>
</tbody>
</table>

Source: Estimated by the Author using E-views 9

The Philipp Peron unit root test was conducted by comparing if the PP adjusted statistic is greater than the critical values at 5%. Thus, as shown in Table 1 the unit roots process were no stationary at the levels test. But became stationary upon first differencing. The results therefore revealed that the series are integrated of order one. Hence, the series were subjected to co-integration test determine their linear combinations for long run relationship.

Co-integration Test Result
In essence, co-integration was conducted to determine the long run relationship amongst the variables in the estimated model. The results of the co-integration test using Johansen approach is reported in Table 2

Table 2: Johansen Co-integration Test Results

<table>
<thead>
<tr>
<th>Hypothesized No. of CE(s)</th>
<th>Eigen value</th>
<th>Trace Statistic</th>
<th>5% Critical Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>None *</td>
<td>0.770</td>
<td>85.974</td>
<td>47.856</td>
</tr>
<tr>
<td>At most 1 *</td>
<td>0.670</td>
<td>43.349</td>
<td>29.797</td>
</tr>
<tr>
<td>At most 2</td>
<td>0.294</td>
<td>11.187</td>
<td>15.495</td>
</tr>
<tr>
<td>At most 3</td>
<td>0.037</td>
<td>1.088</td>
<td>3.841</td>
</tr>
</tbody>
</table>

Max-Eigen Test Result

<table>
<thead>
<tr>
<th>Hypothesized No. of CE(s)</th>
<th>Eigen value</th>
<th>Max-Eigen Statistic</th>
<th>5% Critical Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>None *</td>
<td>0.770</td>
<td>42.625</td>
<td>27.584</td>
</tr>
<tr>
<td>At most 1 *</td>
<td>0.670</td>
<td>32.161</td>
<td>21.132</td>
</tr>
<tr>
<td>At most 2</td>
<td>0.294</td>
<td>10.099</td>
<td>14.265</td>
</tr>
<tr>
<td>At most 3</td>
<td>0.0368</td>
<td>1.088</td>
<td>3.841</td>
</tr>
</tbody>
</table>

Source: Estimated by the Authors’ Using E-views 9

The Johansen co-integration test was conducted by determining if the trace statistics or max-Eigen values were greater than the critical values at 5%. Thus, the trace test results disclosed that two co-integrating equations exist in the model. Similarly, the Max-Eigen test results also
confirm that the model has two co-integrating equations. These findings are indicative that linear combinations of the series lead to long run relationship among them. Owing these findings, the relationships among the variables are represented in an error correction model.

Estimated Error Correction Mechanism (ECM)
The result of the estimated parsimonious ECM form following the transformation of the model by gradual elimination of the highly insignificant coefficients is showed in Table 3.

Table 3: Summary of Parsimonious ECM

<table>
<thead>
<tr>
<th>Variables</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>D(MSG(-1))</td>
<td>0.410</td>
<td>0.188</td>
<td>2.183</td>
<td>0.040</td>
</tr>
<tr>
<td>D(TID(-2))</td>
<td>0.145</td>
<td>0.0318</td>
<td>2.188</td>
<td>0.037</td>
</tr>
<tr>
<td>D(TRT(-2))</td>
<td>-0.004</td>
<td>0.0012</td>
<td>-3.873</td>
<td>0.000</td>
</tr>
<tr>
<td>D(PIV(-2))</td>
<td>-2.85</td>
<td>5.38E-12</td>
<td>-0.531</td>
<td>0.600</td>
</tr>
<tr>
<td>ECM(-1)</td>
<td>-0.0229</td>
<td>0.0049</td>
<td>-2.001</td>
<td>0.047</td>
</tr>
<tr>
<td>C</td>
<td>0.0872</td>
<td>0.0366</td>
<td>2.379</td>
<td>0.026</td>
</tr>
</tbody>
</table>

Source: Estimated by the Authors’ using E-view 9

The dynamic relationship between the variables as captured by the parsimonious ECM revealed that the explanatory power of the regressors collective accounted for 58.4 percent changes in manufacturing sector growth. The F-statistic (3.872) revealed that the explanatory variables are joint important in explaining changes in manufacturing sector growth. The error correction coefficient of 2.29 percent is a pointer that it will take a long period for any short run deviation to be corrected in the system. Moreover, the relationship between the variables as captured by the parsimonious ECM revealed that manufacturing sector growth lagged for one period is positively related to current growth of the manufacturing sector. This finding suggests that growth of the manufacturing sector in the current period depend on the performance of the sector in the previous period. The results also disclosed that the second lag of trade intensity index has significant positive effect on manufacturing sector growth. It was evident from the results that a percentage increase in trade intensity index induces 0.145 percent increase in manufacturing sector growth. This finding supports the theoretical relationship between the two variables and suggests that globalizing the Nigeria economy repositions the manufacturing sector as important driver of growth in Nigeria. On the other hand, restrictions to trade exerted significant negative impact on manufacturing sector growth. On the average, manufacturing sector growth decreases by 0.004 percent due to one percent increase in restrictions in the form of tariffs. The implication of this finding is that the imposition of restrictions through tariffs limits the capacity of manufacturers to import capital goods in order to meet their production targets. It was observed that portfolio investment does not significant impact on manufacturing sector growth as proposed by economic theory.
Post-Estimation Tests
The ECM presented in Table 3 was exposed to some post-estimation tests in order to affirms the
pre-estimation tests and as well as certain if the estimated model is valid for policy.

Table 4: Summary of Post-Estimation Tests Results

<table>
<thead>
<tr>
<th>Test type</th>
<th>Test stat.</th>
<th>p-value</th>
<th>5% Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Serial correlation test (Breush-Godfrey LM test)</td>
<td>$X^2$-stat.</td>
<td>0.299</td>
<td>0.05</td>
</tr>
<tr>
<td>Heteroscedasticity test (Breusch-Pagan-Godfrey test)</td>
<td>$X^2$-stat.</td>
<td>0.651</td>
<td>0.05</td>
</tr>
<tr>
<td>Normality test</td>
<td>Jarque-Bera stat</td>
<td>0.736</td>
<td>0.05</td>
</tr>
</tbody>
</table>

Source: Estimated by the Authors' using E-views 9

The post-estimation tests focused mainly on the key econometrics problems, especially
autocorrelation, heteroscedasticity and normality of the residuals. The results of the tests
disclosed that the residuals are normally distributed as the P-value (0.736) of Jarque-Bera
statistic exceeds 0.05. The model is equally free from autocorrelation and heteroscedasticity
given that their respective p-values of 0.299 and 0.651 for both tests which are greater than 0.05.
These findings are desirable as they indicated that the model is good for forecast.

Conclusion and Recommendations
This study examined the impact of globalization on the growth of the manufacturing sector in
Nigeria. The focus on globalization was informed by its central place in the policy advice
offered to developing economies including Nigeria to drive broad-based growth and developing
in these countries. The results showed that globalization helps in driving the process of growth
in manufacturing sector growth. This is captured by the positive impacts of trade intensity index
and significant impact of trade restriction on the manufacturing sector growth. But the work
showed that foreign portfolio investment does not significant affect manufacturing sector
growth as proposed by economic theory and some empirical literature in the work. Owing to
the findings, it was concluded that globalization is good for turnaround in manufacturing
sector. But barriers in the form of restrictions to trade are constraints to productivity of the
manufacturing sector. It is therefore recommended that policy makers should ensure that
Nigeria leveraged on the gains of globalization by focusing on producing and exporting
manufactured goods in which it enjoins comparative advantage and cost effectiveness. Again,
regulatory bodies should strive to limit the restrictions on capital goods in order the meet the
macroeconomic objectives of boosting industrialization in Nigeria. The key players in the
Nigerian capital market should strive to attract portfolio investments by restoring investors'
confidence through transparency and international best practices.
References


