ECONOMIC GLOBALISATION AND THE MANUFACTURING OUTPUT IN NIGERIA

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Abstract

The study investigates the impact of economic globalisation on the manufacturing output of Nigeria, using annual time series data from 1980-2019.The explanatory variables include;foreign direct investment, foreign portfolio investment, official development assistance, trade openness, and exchange rate while manufacturing output is the dependent variable. The Augmented Dickey-Fuller Unit root was conducted to test for the stationarity of the variables while the Engel-Granger two step Co-integrationtest was conducted to determine whether a long run relationship exists between the variables. The unit root test reveals that all the variables became stationary after first difference, while the Engel-Granger co-integration test reveals that a long run relationship exists between the variables. The results from the analysis show that foreign direct investment, foreign portfolio investment and official development assistance all have positive and significant impact on manufacturing output in Nigeria.. Conversely, trade openness and exchange rate have negative impacts on manufacturing output in Nigeria. The study therefore concludes that economic globalisation has a positive impact on manufacturing output in Nigeria. It is recommended among others that economic globalization should be embraced and that the Nigeria government should put adequate measures in place to attract foreign direct investment and foreign portfolio investment.

Keywords*: Economic Globalisation, Foreign Direct Investment, Official Development Assistance.*

Introduction

The idea of globalisation has received considerable attention from scholars in recent times. Nevertheless, the term globalisation does not have a fixed description (Ebong, Udoh, and Obafemi, 2014). Globalisation can be viewed as a comprehensive set of procedures concerning multiple networks of economic, political and cultural interchange propelled by information and communication technology (Ojo and Ololade 2014;Anjande and Ijirshar, 2017; Kalu, Paul, Chukwu, KanuOgbuagu, Osunkwo and Ndubuisi, 2019).Economic globalisation encompasses the snowballing of economic integration and interdependence of national, regional and local economies across the world through the strengthening of cross-border movements of goods, services, technologies and capital (Ogunyomi, Jenrola, and Daisi, 2013). This implies the globalisation of production, finance, markets, technology, organizational regimes, institutions, corporations, and labour (Akpan, Inimfon, Daniel and Udoka, 2013; Felix and Emmanuel 2015; Asuamah, Samuel and Abbey, 2016). Ever since, this has been on the rise in terms of the emergence of trans-national trade amongst the countries of the world. Vaz and Baer (2014) observed that the dilemmas emerging states face is whether they should open their economies up to the globalisation processes or risk the possibility of linking other countries. We are mostly concerned with how globalisation impacts on the manufacturing sector in Nigeria **(**Ajakaiye, Jerome, and Alaba, 2016).

On the strength of the above, the manufacturing sector plays a very catalytic and crucial role and possesses many dynamic paybacks for transforming the economy. Manufacturing encompasses the process of transforming raw materials into finished or in-between goods (Akinmulegun and Oluwole, 2014; Ajakaiye, Jerome, and Alaba, 2016).Through the manufacturing sector, the nation can determine the level of economic efficiency and functionality of the entire economy (Danladi, Akomolafe, Babalola and Oladipupo (2015). It is strongly believed in some quarters that the development of the manufacturing sector connotes the development of the economy entirely since it is a sine-qua-non for improving the vicious cycle of poverty and for achieving dynamic and self-reliant economies **(**Akpan and Atan, 2015; Ali, Victor, Obayori, and Obayori, 2018). Additionally, it generates investment capital at a faster rate

than any other sector of the economy while promoting wider and more effective linkages among different sectors (Usenobong and Johnson, 2015).

In light of the above, this study investigates the impact of economic globalization on manufacturing output in Nigeria. In order to achieve this, the study investigates the impacts of foreign portfolio investment, foreign direct investment, official development assistance, exchange rate and degree of openness on manufacturing output in Nigeria.

Literature Review

Theoretical Literature

Though there are several theories on the connections between globalisation and the manufacturing sector in Nigeria, few theories relevant to our study are briefly discussed here.

(a) The Two- Gap Model of Development

The two-gap technique is championed by Chenery and Strout (1956) with the idea that critical gap exists in the economy. These are the investment-savings gap and the foreign aid gap. The two-gaps are separate and impose independent constraints on the achievement of the growth targets in much less advanced counties (LAC). To fill the savings gap, external aid is needed to meet the home needs of national income. Correspondingly, the theory has fixed nexus assumed between target foreign exchange requirement and net export income. In this situation, if the net export income at any time falls short of the foreign exchange earnings, a foreign exchange gap is sure to occur and can be stuffed up by means of external aid. The two-gap approach can be explained in terms of the national income identities like E–Y = I-S = M-X = E-F. E is national expenditure, Y is national income and output, I = investment, S = savings, M represents import, X = export, and F represents net capital influx. On this analysis, I-S represents domestic savings gap while M-X is the foreign exchange gap. In every economy, savings gap can arise when domestic savings rate fall short of the investment required to accomplishing the target. In Nigeria, the ability to mobilize savings considered vital and enough to achieved desired goal in the manufacturing sector remain too utopian a task on the part of the government. Savings – investment gap

therefore, exist only to the point where domestic savings becomes too small to the magnitude necessary to obtain the needed rate of growth.

(b) Portfolio Theory of International Capital Flows

Devereux and Saito (2006), offered a biddable model of global capital flows in which the presence of nominal bonds and the portfolio structure of net foreign assets is a necessary element in expediting capital flows between countries. National monetary policies make domestic and foreign currency denominated bonds vary in the gradation to which they can hedge country specific consumption risk. This leads countries to have different composition of currency-denominated bonds in their countrywide portfolios. By altering their gross positions in each currency's bonds, countries can accomplish an optimally hedged variation in their net foreign assets (or their current account), hence expediting global capital flows. Moreover, the risk characteristics of optimal portfolios ensures that current account movements are sustainable -net debtor countries pay lower rates of return on their gross liabilities than they receive on their gross assets. This ensures that the distribution of wealth across countries is stationary.

Empirical literature

This section entails the empirical literature on the affiliation between globalization and its impact on the manufacturing sector.

Aras and Odebode(2019).examined the impact of globalization on manufacturing output in Nigeria. Using structural vector autoregressive (SVAR) approaches, from 2010Q1 to 2018Q4, the findings revealed that manufacturing output and transportation responded significantly to the foreign shocks emanating from globalization. The study established that the manufacturing output reacted negatively to exchange rate fluctuations, implying that exchange rate is very important to manufacturing sector in Nigeria.

Ali, Victor, Obayori, &Obayori (2018) studied the effect of globalization on manufacturing sector growth in Nigeria. Specifically,the study examined how trade intensity index, portfolio investments and trade restrictions impact on the growth of the manufacturing sector in Nigeria for the period from 1980 to

2016. In analysing the data, the study empolyed Phillips-Perron unit root test, 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 per cent increase in manufacturing sector growth. On the other hand, trade restrictions exerted significant negative impact on manufacturing sector growth. Thus, one per cent increase in trade restrictions in the form of tariffs, decreases manufacturing sector growth by 0.004 per cent. 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 per cent. Similarly, Anjandeand Ushahemba (2017) x-rayed the relationship between globalization and the manufacturing sector performance in Nigeria from 1985 to 2015. The study adopted ARDL technique in data analysis. The study revealed that some ofthe variables were stationary at level while others were stationary at first difference. The co-integrationresults showed a long-run relationship between globalization and manufacturing output in Nigeria. Conversely, the short-run impact of the globalization on the manufacturing performance was negative. The study also found that even if manufacturing output drift away from equilibrium in the short-run, it has the capacity to return to long-run equilibrium at 66.47% each year.

Asuamah, Samuel and Samuel (2016) investigated the relationship between globalisation and manufacturing sector productivity in Ghana for the period 1961-2013 using annual time series data. The augmented Dickey Fuller and Kwiatkowski–Phillips–Schmidt–Shin, Johansen co-integration test,VECM and the granger causality tests were employed. The findings suggest that all the variables were integrated of order one. The findings of the study indicate that the manufacturing sector has not benefited from globalisation.

Agu, Nnaemeka and Maduagu (2016) examined the effect of globalization on Nigeria manufacturing sector. Specifically, the objectives of the study are to evaluate the influence of trade liberalization on the consumption of Nigeria

made products, determine the effect of technology on product quality in the Nigerian manufacturing industry, and determine the influence of globalization on employee job relations in the Nigerian manufacturing industry. The study had a population size of 640, out of which a sample size of 246was realized using Taro Yamane Formula at 5% error to tolerance and 95% level of confidence. The instrument used for data collection was principally questionnaire and interview. The findings show that trade liberalization has significant negative effect on the consumption of Nigeria made products, technology has a positive influence on product quality of the Nigeria manufacturing industry and globalization has significant positive influence on employee job relations in the manufacturing industry. The study recognized that globalization is a weapon of double edge that boosts and reduce economic activities of any developing nation.

Danladi, Akomolafe, Babalola and Oladipupo (2015) investigated the influence of globalization on the manufacturing sector of Nigeria from the period 1980 to 2013. The degree of openness, foreign direct investment, exchange rate and inflation rate were used to capture the causal affiliation between globalization and the manufacturing sector of Nigeria. The study adopted Vector Auto-Regression (VAR) model in data analysis and the results shows a positive relationship between globalization and the manufacturing output. This means that globalization increases the general production level. This shows that a positive relationship exists between globalization and the manufacturing sector of Nigeria.

From the studies reviewed, conflicting results have been observed (Anjande and Ushahemba, 2017, Asuamah et al, 2016 and Danladi et al 2015). This serves as a motivation for this study.

Method of Study

In an effort to find the impact ofglobalisation on the Nigerian manufacturing sector, the study embraces the regression model. The study employed time series data covering from 1980 to 2019. In data analysis, the study employed the ordinary least square technique (OLS). However, due to the nature of the time series, the OLS was preceededa dianogstic test such as unit root test using Augumented Dickey Fuller unit root test. This test is to ascertain the

stationarity of the variables. Based on the result of the Augumented Dickey Fuller test, the test for co-integration was carried out. This is to ascertain the existence of long-run relationship between the variables and this is followed by the error correction mechanism.

Model Specification

The model for this study is premised on the study by Ali, Victor, Obayori and Obayori (2018) but with little modification. The areas of modification are on the variables and time frame. As a measure of economic globalization Ali et al (2018) used trade intensity index, trade restrictions and foreign portfolio investment while this study used trade openness, foreign direct investment, foreign portfolio investment and official development assistance. Also, Ali et al (2018) stopped their analysis at 2018 while this study extended to 2019.
The data for this study are gotten from CBN statistical bulletin various edition, IMF international financial statistics and World Development indicators.

The modified model is stated below:

$$MOT = f(FDI, PFI, ODA, TOP, \text{EXR}) \quad \textbf{(1)}$$

Explicitly equation (1) can be stated in econometric form thus

$$MOT = \lambda_0 + \lambda_1 FDI_t + \lambda_2 PFI_t + \lambda_3 TOP_t + \lambda_4 ODA_t + \lambda_5 EXR_t + \mu_t \quad \textbf{(2)}$$

Where:

MOT = Manufacturing Output,
FDI = Foreign Direct Investment,
PFI = Foreign Portfolio Investment,
TOP = Trade Openness,
ODA = Official Development Assistance,
EXR = Exchange Rate.
λ_0 = Constant
$\lambda_1, \lambda_2, \lambda_3 and \lambda_4 > 0; \lambda_5 < 0$ = Coefficients of the Explanatory Variables
μ_t = Error term

Manufacturing output is the dependent variable, while foreign direct investment, foreign portfolio investment, trade openness, official development assistance and exchange rate the explanatory variables.

Results and Discussion

Unit Root Test

The unit root test was conducted on the variables in order to avoid spurious regression. We employed the Augmented Dickey-Fuller unit root test in order to determine the level of stationarity of the variables, that is, whether the variables are stationary at levels or at first difference.

Table 1: Unit Root Test Results

Augmented Dickey-Fuller (ADF) Test

Variables	**Level**	**5%C.V**	**1st Diff.**	**5%C.V**	**Status**
LOG(MOT)	-0.532939	-3.529758	-5.116184	-3.533083	I(1)
LOG(FDI)	-2.996750	-3.529758	-9.420624	-3.533083	I(1)
LOG(FPI)	-3.349035	-3.529758	-7.214563	-3.533083	I(1)
LOG(TOP)	-2.170117	-3.529758	-6.362765	-3.533083	I(1)
LOG(ODA)	-3.531388	-3.529758	-5.845622	-3.533083	I(1)
LOG(EXR)	-0.845500	-3.529758	-5.723736	-3.533083	I(1)
ECM	-7.323855	-3.529758	-	-3.533083	I(1)

Source: *Authors Computation*

The result of the unit root test using the ADF at constant and trend as reported in Table 1 shows that MOT, FDI, FPI, TOP, ODA and EXR were stationary after 1st difference. Since the error is stationary at level, it revealed that there is a long-run relationship between the dependent and the explanatory variables.

Engel-Granger Co-integration Test

We use the Engel-Granger two step approach to test if there exist at least a linear combination of the variables with unit roots that is stationary at first difference. The result is presented below:

Table 2: Engel-Granger Co-integration Test

Dependent	tau-statistic	Prob.*	z-statistic	Prob.*
MOT	-14.02953	0.0000	93.38561	0.9999
FDI	-5.039717	0.1161	-61.78210	0.0000
FPI	-6.337844	0.0103	-84.69433	0.0000
TOP	-3.243014	0.7820	-16.42639	0.8091
ODA	-4.980141	0.1276	-52.31907	0.0000
EXR	-3.246189	0.7809	-15.81106	0.8358

MacKinnon (1996) p-values

The result above reveals that there exists a long run relationship between the dependent and the explanatory variables.

Parsimonious Error Correction Model

The table presents the estimated coefficients of the long run relationship between the variables in the model

Table 3: Estimated Coefficient of the Relationship between the variables

Dependent Variable: DLOG (MOT)

Variable	Coefficient	Std. Error	t-Statistic	Prob.* C
	-0.305702	0.120330	-2.540526	0.0200
DLOG(MOT(-1))	2.767529	1.015801	2.724479	0.0135
DLOG(MOT(-3))	2.344578	0.932726	2.513683	0.0211
DLOG(FDI)	0.331418	0.139824	2.370250	0.0285
DLOG(FDI(-1))	-1.466087	0.322021	-4.552770	0.0002
DLOG(FDI(-2))	-0.331359	0.240130	-1.379916	0.1836
DLOG(FPI)	0.115925	0.051042	2.271184	0.0350
DLOG(FPI(-1))	-0.125589	0.060194	-2.086403	0.0507
DLOG(FPI(-3))	-0.075411	0.052505	-1.436272	0.1672
DLOG(TOP)	-1.524794	0.388039	-3.929486	0.0009
DLOG(TOP(-3))	0.720189	0.338556	2.127238	0.0467
DLOG(ODA)	0.472905	0.155975	3.031937	0.0069
DLOG(ODA-2))	0.359985	0.163627	2.200037	0.0404
DLOG(EXR)	-0.338579	0.261031	-1.297084	0.2101
DLOG(EXR(-1))	1.047209	0.332235	3.152012	0.0052
DLOG(EXR(-3))	0.628853	0.346365	1.815578	0.0853
ECM(-1)	-3.857085	0.608110	-6.342746	0.0000

R-Square = 0.837175, F-Statistics = 6.1056, Prob(F-Statistic) = 0.000160, D-W = 1.5347

Results and Discussion

The coefficient of determination (R2) of the estimated model indicates that about 84% of the variations in manufacturing output is explained by the combined effect of the explanatory variables (FDI, FPI, TOP, ODA and EXR), while the F-Statistics shows that overall regression is significant at both 1% and 5% levels of significance. Also, the equations standard error of 0.760254 signifies that in about two-thirds of the time, the predicted value of domestic manufacturing output (MOT) would be within 7.6% of the actual value and given the Durbin-Watson value of 1.5347 which suggests the absence of serial or auto-correlation.

The coefficient of the error correction term is statistically significant and carries the expected negative sign at both 5% and 1% levels of significance. However, the speed of adjustment is very high, that is, 386% of the adjustment to equilibrium in manufacturing output is expected to occur in the long run. Further, this figure shows the average speed of adjustment of manufacturing output to its long run change in the equilibrium condition. This result indicates that ignoring error correction in non stationary time series analysis would lead to misspecification of the underlying process to achieve manufacturing output stability in Nigeria.

As shown in table 3, the current value of foreign direct investment has a positive and significant impact on manufacturing output in Nigeria. A percent increase in FDI improves manufacturing output by 33%. But the first lagged value has a statistically negative influence on the volatility of manufacturing output over time with an inertia of 147%. This means an increase in the current value of foreign direct investment (FDI) in Nigeria will have a positive effect on manufacturing output in the country which conforms to theoretical expectation.

The value of foreign portfolio investment (FPI) has positive and statistically significant impact on manufacturing output in Nigeria at the 5% level of significance. That is, if there is an increase in portfolio investment by 1 unit, manufacturing output (MOT) would increase by 0.115925 units. This is consonance with our theoretical expectation. However, the first and second

lagged values of FPI have statistically significant negative impact on manufacturing output at the 5% level of significance.

Furthermore, the value trade openness (TOP) has a negative and statistically significant influence on manufacturing output at the 5% level of significance. This is contrary to theoretical expectation. However, the third lag of trade openness (TOP) has a positive and statistically significant impact on manufacturing output (MOT) which agrees with theoretical expectation.

Official Development Assistance (ODA) on both current and second values have a positive and significant impact on manufacturing output in the Nigerian economy by 47% and 35% respectively at the 5% level of significance.

Finally, the current value of exchange rate (EXR) has a negative but statistically insignificant impact on manufacturing output at the 5% level of significance. A 1 percent increase in exchange rate would reduce manufacturing output insignificantly by 33 percent.

Conclusion and Recommendations

Evidence from the estimated regression analysis suggests that the explanatory variables explain 84 percent of the variations in manufacturing output in Nigeria. This implies that the estimated model is very reliable for forecast purpose. The result also shows that foreign direct investment, foreign portfolio investment and official development assistance all have positive and statistically significant impact on manufacturing output in Nigeria, while trade openness has negative significant impact on manufacturing output, and exchange rate has a negative but statistically insignificant impact on manufacturing output in Nigeria. The study therefore concludes that economic globalisation has a positive and statistically significant impact on manufacturing output in Nigeria.

This study therefore makes the following recommendations:

1. Economic globalization should be embraced by the Nigeria government and the Nigerian economy at large.

2. Government should endeavour to provide a stable and peaceful economy so as to attract more foreign direct investment to the country.

3. The Nigeria capital market should be properly developed and upgraded in other to enable it attract more foreign portfolio investment since portfolio investment impacts positive and significantly on manufacturing output in Nigeria.

4. There should also be improvement or an increase in official development assistance as it also serves as a driving force that brings about positive impact on Nigeria's manufacturing output.

5. The monetary officials should manage the exchange rate very well to ensure a reduction in it as high exchange rate impacts negatively on Nigeria's manufacturing output.

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