EFFECT OF GLOBALIZATION ON MANUFACTURING SECTOR PERFORMANCE IN NIGERIAN ECONOMY

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ABSTRACT

Globalization is characterized by some weaknesses and opportunities to achieving a productive economy, hence this study examined the effects of globalization on the manufacturing sector being the real sector in the Nigerian economy. Being an empirical research with secondary data obtained from Central Bank of Nigeria statistical bulletin covering the period beginning from 1980 to 2021 and the data found integrated at the same order, the study applied Error Correction Mechanism to test the hypotheses. The results revealed that the coefficient of foreign income at lag one and the gross domestic product lagged by two-year period had direct relationship with the manufacturing sector implying enhancement in the manufacturing sector. That of exports and the ratio of foreign price to domestic price established negative coefficient contrary to a priori expectation. The implication of this result is that there could be instabilities during the period of study and the effect did not yield the desire result in relationship with the manufacturing sector The study concludes that globalization enhanced the manufacturing sector through a rise in the gross domestic product and foreign income. Therefore, the study recommends expansionary fiscal policy to enhance investment as this will stimulate productive economy thereby increasing the volume of exports and the ratio of foreign price to domestic price gears towards manufacturing sector growth through globalization means.

Key words: Globalization, manufacturing sector, export, ECM, Nigeria

JEL Codes: E62, L6, L78, L98

1.0 INTRODUCTION

Globalization is referred to external opening of the economy and increasing the role of market operation to the developing world. Therefore, globalization appears to have turned the whirlwind blowing as a result of heighted information and communication technology by encouraging interactions within the geographical boundaries of every nation. This has remained a major point of interest in the present time because different nations in the globe interrelates with one and another in

the form of international trade and technology aliance etc. By this, we can say that globalization is characterized by multidimensional economy, technology, political and social means which help to transform the global economy (Osu, 2020). The essence of globalization entails moving the economy to external liberation, thereby focusing on market oriented system of government and export-promotion strategy gears towards economic growth. The objective of every country whether developed or developing ones is to globalize, by opening the economy to the international markets. The expectation is that globalization will bring economic growth through the growth of all sector particularly the manufacturing sector. The rising trend in globalization has facilitated increase in the performance of technology and communication (Odili, 2021)

Yeung, (2018) stressed on the relevant elements in the evolution of the global system for the expansion of capital flow. Obi (2021), pointed out that globalization comprises both the positive and negative effect. In his reaction, positive effects are numerous and these includes specialization and efficiency, good quality products and economies of scale and these will lead to increase in the total factor productivity. He further added that the negative aspect of globalization which according to him occurred when an economy adopts inappropriate macroeconomic policies.

Globalization became popular in the mid-1980s when Nigeria adopted the Structural Adjustment Program (SAP) and this led to the liberalization of the financial market as well as interest rate (Onyele and Ikwuagwu, 2020). The Structural Adjustment Program was established in order to restructure and diversify production gears towards achieving exchange rate stability. through trade and commercialization. However, SAP did not yield the desire result in the economy. This revealed that globalization takes some economic costs. The global financial market has contributed to the Nigerian financial market susceptibility as a result of fluctuation in the financial system.

Today, the Nigeria economy is characterized by high level of unemployment and poverty and the desire to fight these ugly situation prevailing in the economy for reason of international market has failed to yield good results (Ndigbu, Otiwu and Uzowuru, 2021). Being that as it may, globalization caused Nigeria to remain at the mercy of the advanced countries thereby making many Nigerian to migrate to the developed nations for reason of better living standard. This can also be attributed for reason of monoculture in terms of export. Taking a look at the above, the study is aimed at providing an empirical investigation on the impact of globalization on the manufacturing sector in Nigeria. The rest of this study is structured as follows: section two is the literature review, section three focuses on the methodology, while section four addresses the results and discussion, the section five deals with conclusion and recommendations

2. LITERATURE REVIEW

2.1 Theoretical Literature

2.1.1 Modernization Theory

This theory considered the domestic factors of any economy by assuming that financial assistance of traditional economy can be developed in the same way like that of the developed countries. (Moghadan,1999). The Modernization Theory had it that to achieve economy growth, technological advancement, production efficiency and quality education remained the key parameters (Popoola,2020). On the basis of this, the traditional society are moving towards achieving the components for globalization (Piven, 2019). By this scenario, modernization is closely linked with globalization as they are characterized by technological advancement as their center of focus, the advancement of any economy is a function of capital investment in technology. Khor, (2020), stated that capital flow depends on the availability of resource factors which includes technology,

availability of market and capital, these are important for the growth of an economy through the manufacturing performance.

2.2 Empirical Literature

Many studies have dealt with the relationship between globalization and the growth of the Nigerian economy and also the feasibility of expanding export trade through the globalization process. Okoh 2012 dealt with this aspect extensively by investigating the degree of responsiveness of exports in Nigeria to demand pressure brought about by globalization. The results obtained had it that in the long-run, the demand pressure for the Nigeria export product would be price inelastic while income would be fairly elastic. This revealed that in the long-run, Nigeria is likely to expand her export base if there is a rise in income. The study however recommended Nigeria full participation in the global market and the purchase of new technological equipment.

Nwofia and Awoinde (2020) examined the asymmetric effect of globalization on the economic growth in Nigeria by using the Ordinary Least Squares technique. The result revealed that globalization enhances economic growth through development assistance. Therefore, the study recommends increase in global market drive for reason of higher expansion of the Nigerian economy.

Osu (2020) investigated the relationship between globalization and economic growth in Nigeria. The study covered the period of 1980 to 2018 that is thirty-nine (39) years being the sample period. The study also employed the error correction mechanism and the results obtained revealed that globalization promotes economy growth hence the study recommends government development assistance as this has found out to significant impact on the economy prosperity.

In addition, Loto (2017) examined the impact of globalization on the Nigerian economic growth by using the Ordinary Least Squares technique for the period spanning from 1980 to 2015. The results

disagree with the a priori prediction hence the finding reveals a negative coefficient of the parameter estimate. The study stressed that low level of export might be responsible for the inverse relationship sign exhibited by the coefficient of the parameter estimate.

Etim (2021) investigated the effects of globalization on the Nigerian economy. The study applied the Auto-Regressive Distribution Lag approach. The result shows support of the globalization impact on the Nigerian economy. The study further saw rationale to minimize the adverse effect arising from globalization while exploring its benefits for national interest.

Hadiatou (2010) investigated whether or not globalization is a significant factor that can warrant economic growth in the Sub-Saharan Africa region by using Auto-Regression Distribution Lag technique. The results establish a direct relationship between the globalization and economic growth in the region. The findings also demonstrate statistical significance at the 5 per cent level implying 95 per cent confident of the result. Therefore, the study recommends globalization in the Sub-African region.

Adawo (2020) examined the globalization effect on the Nigerian economy without relating to any sector. In line with results obtained, he established that Nigeria requires some relevant conditions to maximize the benefits arising from globalization, hence the study emphasizes the rationale for acquisition of technical factor inputs, training skills and minimization or eradication of corrupt practices in the economy.

3. METHODOLOGY

3.1 Data Sources

This study relies on historical quantitative data which are available in secondary form and were obtained from the Central Bank of Nigeria Statistical Bulletin 2018 and 2021. The study employs annual time series data covering the period 1980 to 2021. The variables used include value of

manufactured product at time t, the ratio of foreign price to domestic price, foreign income, gross domestic product, value of imported capital and exports.

3.1 Theoretical Framework

Globalization took its effect right from the days of the mercantilist for the promotion of trade. This happened even before the emergence of Adam Smith and David Ricardo's theses. For the same reason, Thirwall, (2000) argued that liberalization and the growth of an economy through the manufacturing performance is highly correlated. Trade liberalization has a positive impact on the economic growth through improvement in the manufacturing sector thereby stimulating exports. This has both the supply and the demand effect. This trade theory is essential for the growth of any economy and the argument is not in favor of autarky. The idea is that the economy must be opened and the world market must also be integrated. Adawo (2020), had it that no economy is self-sufficient. The word economy is increasingly deepening and intensifying international linkages.

3.2 Model Specification

The center of focus in this study is the response of manufacturing sector to globalization (openness). The demand equation to test the relationship between the manufacturing sector output and the globalization given in the adapted model of Nwofia and Aworinde (2020) is however stated as:

MFG_t = f(RPXW_t) …… (1)

Where

MFG_t equals value of manufactured product at time t, RP denotes $\frac{pd_t}{pn_t}$, pn_t represents foreign price at time t, pd_t equal to the domestic price at time t, w_t represents foreign income at time t and x represents export.

By linearization, equation (1) becomes:

$MFG_t = \delta_0 + \delta_1 RP_t + \delta_2 w_t + \epsilon_t$ …… (2)

ϵ_t equals error term. Others are previously defined

The ability for an economy to respond to demand determines the performance of the manufacturing sector. The manufacturing outputs are being demanded by other countries who are in need of the products. If there is a rise in the demand for a country's export, the capacity to meet the demands lies on the full utilization of the installed capacity. This can be largely dependent on the degree of technology. Therefore, globalization enhances the state of technology transfer which is the capital import acting as determining factor of export response. By including these three determinants of manufacturing sector output into the adapted model, the study established model (3) below:

$$MFG_t = \delta_0 + \delta_1 RP_t + \delta_2 w_t + \delta_3 GDP_t + \delta_4 CPT_t + \delta_5 EXP_t + \epsilon_t \quad \ldots\ldots\ldots\ldots\ldots\ldots (3)$$

The expected a priori signs of the above coefficient of the parameter estimates are:

$\delta_1 > 0,\ \delta_2 < 0, \delta_3 \rightarrow \delta_5 > 0$

Where

GDP stands for Gross Domestic Product, CPT is the value of imported capital and EXP denotes exports.

For the study to appropriately capture the degree of openness in the economy, export is however integrated into the above model (3). In addition, GDP is also integrated into the model for reason of determining the extent that GDP can enhance the manufacturing sector performance in Nigerian economy.

4. DISCUSSION OF RGRESSION RESULTS

Unit Root Analysis

The study uses Augmented Dickey-Fuller (ADF) and Philip-Peron (PP) test statistic to determine the stationarity as well as the robustness of the specified model. In addition, the study applied the ADF test statistic to investigate the characteristics of the data sample, constant and trend.

Table 1: Unit Root Test Results

Variables	At Levels		At First Diff.		
	ADF	Philip-Peron (PP)	ADF	Philip-Peron (PP)	
MFG	-1.2211	-0.7614	-3.6104	-4.4330	I(1)
RP	-1.4230	-0.6004	-3.7002	-5.8504	I(1)
W	-2.3101	-1.4471	-6.1611	-6.4223	I(1)
GDP	-0.7050	-0.1571	-5.1051	-5.6123	I(1)
CPT	-0.9702	-2.7232	-4.3413	-5.4415	I(1)
EXP	-1.5211	-2.2033	-5.2177	-5.3325	I(1)

The Test critical value at the 5% level: ADF = -2.9432 & Philip-Peron = -2.9861
Source: Research Regression Output

On the basis of this, the Philip-Peron technique was also used because it will enable us to modifies the ratio of the coefficient so that the serial correlation will not affect the asymptotic distribution of the test statistic. The study found out that the results for the ADF and Philip-Peron (PP) are similar in trend as the variables are stationary at first difference and thus integrated at order one.

4.1 Lag Length Selection

Table 2: Lag Length Selection Criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-2110.152	NA	3.32e+22	112.0621	132.8212	112.4403
1	-2104.334	341.8211	3.31e+05	105.0302	103.2045	104.4021
2	-2151.431	127.4101	5.42e+27	102.3811	132.3512	115.1271
3	-2141.291	96.1250*	2.03e+16*	114.1910*	124.3021*	114.0250*

**Indicates lag order selected by the criterion*
Source: Research Regression Output

The table 2 above contains the results of the lag length selection criteria. The study uses annual time series data to determine the lag length selection. The maximum lag is 3 as revealed by the final prediction error (FPE) denoting the minimum value.

Johansen Multivariate Co-Integration Test Results

Table 3

Null Hypothesis	Test Statistic	Critical at 0.05	Hypothesized N0of CE(s)
r = 0*	112.20	75.02	None**
r ≤ 1*	114.01	47.12	At most**
r ≤ 2*	97.31	44.01	At most 2**
r ≤ 3*	81.33	23.24	At most 3**
r ≤ 4*	41.05	31.30	At most 4*
r ≤ 5*	66.15	32.50	At most 5*

**(**) represents the rejection of the hypothesis at 0.05 and 0.01 level of significance*
The maximum Engel value test results indicate 4 co-integrating equation at the 0.05 level of significant
Source: Research Regression Output

From Table 3 above, the maximum Engel value indicates 4 co-integrating vectors among the variables since the hypothesis of non-co-integrating vector (r = 0) is however rejected. The number of co-integrating vectors as indicated by 'r' is at least four indicating long-run equilibrium relationship among the variables contain in the specified model.

Long Run Results with Dependent Variable MFG

Table 4:

Variable	Coefficient	Std. Error	t statistics	Probability
C	-2.2489	0.5107	-4.4036.	0.0387
RP	0.1582	0.0460	3.4391	0.0431
W	0.0730	0.0362	2.0166	0.0194
GDP	0.6133	0.2116	2.8984	0.0358
CPT	-2.5220	1.0105	-2.4958	0.0512

EXP	2,4430	1.0221	2.3902	0.0441

Source: Research Regression Output

Given table4.4 above, the results of the long-run show that all the variables except CPT is positively related to the manufacturing sector (MFG) and this is in line with the a priori expectation. The meaning of this is that the variables RP, W, GDP and EXP exhibit direct relationship with the manufacturing sector output in Nigerian economy. The coefficient of the value of the imported capital (CPT) of -2.5220 reveals a negative relationship with the manufacturing sector implying a crowding out effect of the domestic earnings as the value of capital goods imported rises, the manufacturing sector declined.

The Parsimonious Error Correction Estimates with MFG as Dependent Variable

Table 5:

Variables	**Coefficient**	**Std. Error**	**t. Statistics**	**Probability**
C	0.2038	0.1026	0.1.9864	0.0480
D[RP(-3)]	-0.3360	0.1014	-3.3136	0.0252
$D[W(-1)]$	0.1130	0.0611	1.8494	0.0502
D[GDP(-2)]	0.1515	0.0316	4.7943	0.0107
D[CPT(-1)]	-0.2125	0.0531	-4.002	0.0108
D(EXP)	-0.2015	0.0812	-2.4815	0.0425
ECM (-1)	-0.7420	0.3130	-2.3706	0.0302

Source: Research Regression Output

In order to capture the short-run deviation that might have occurred during the estimation of the long-run co-integrating equation; a dynamic error correction model is estimated given in table 4.5 This dynamic model as shown in table 4.5 reveals that the variables indicators are statistically significant at the 5 per cent level. Though, some of the variables like the ratio of the foreign price to the domestic price D[RP(-3)] at lag three and D[GDP(-2)] lag two established negative coefficient of the parameter estimate. These results of these two variables is contrary to the theoretical expectation.

The variable $D[W(-1)]$and D[GDP(-2)] at lag one and two exhibit direct coefficient with the manufacturing sector implying that a rise in foreign income stimulates the manufacturing sector performance and in addition, the GDP being one of the exogenous variable experiences increase and by this scenario, the manufacturing sector output improves. The result in the improvement in the manufacturing sector warranted by the above explanatory variables is similar to the results obtained by Hadiatou (2010) who investigated whether or not globalization is a significant factor that can warrant economic growth in the Sub-Saharan Africa region where he used Auto-Regression Distribution Lag technique. The results establish a direct relationship between the globalization and economic growth in the region. By this, similar results are established with the present findings

The coefficient of D[CPT(-1)] at lag one satisfied the a priori expectation. Given the result, there exist a crowding out effect of the domestic earnings as the value of capital import increases

The coefficient of the Error Correction Mechanism (ECM) which is -0.7420 is highly significant at the 5 per cent level and also correctly signed. The result suggests a fast adjustment process of 74 per cent disequilibrium in the manufacturing sector of the previous period shock adjusted back to the long-run equilibrium given the current period. It is also a confirmation and indeed a measurement of the manufacturing sector output and its determinants being co-integrated.

4.5 Diagnostic Test

To confirm the robustness of the specified model, the study performs diagnostic tests stated in table 6 below

Table 6: Key Regression Statistics and Diagnostic Statistics

R squared	0.8643	Mean dependent var.	7.311
Adjusted R-squared	0.8522	S.D. dependent var.	0.234
S.E.of Regression	0.052	Akaike inform. Criterion	-3.722
Sum Squared Residual	0.215	Schwarz criterion	-3.720
Durbin- Watson	1.7713	F-Statistic	0.0021

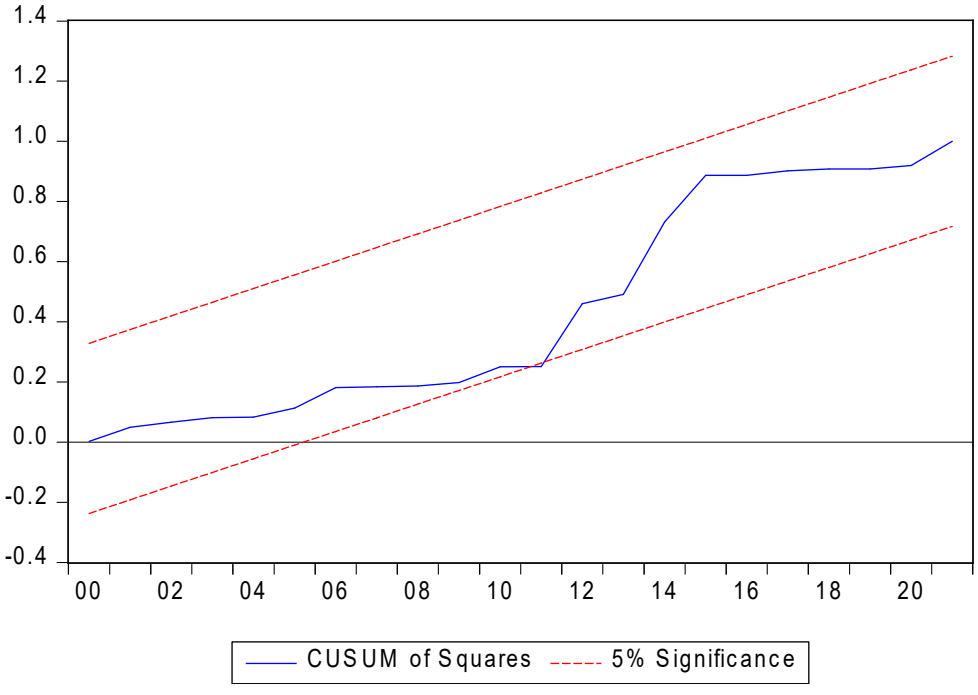
Source: Research Regression Output

Serial correlation F, (4.58) = 0.421
Normality 2(2) = 8.603 (0.000)
Heteroscedasticity F(4.58) = 1.302

The model diagnostic tests revealed that the explanatory variables account for 86 per cent of the variation in the manufacturing sector. Thus, the overall goodness of fit is relatively okay though two of them did not return the expected sign as earlier discussed. The Akaike information criteria and Schwarz Criterion show that the model is correctly specified. The F-Statistic which measures the joint significant of all the regressors in the model is statistically significant at the 5 per cent level. Similarly, the Durbin-Watson statistic of 1.7713 can be approximated to 2.0 The model passes the normality test. The results had it that there is no serial autocorrelation and heteroscedasticity in the specified model.**4.6 Stability Test**

Fig.1.0: Plot of Cumulative Sum of Square of Recursive Results

The stability test reveals whether the model is appropriately specified and the study performed the stability test by using the cumulative sum of square residual as shown in figure 1.0. The existence of parameter instability is established if the cumulative sum of square goes outside the area between the critical (dotted bounded) lines. This is estimated at the 5 per cent critical value. Therefore, from fig.



1.0 below, it can be inferred that the model at 5 per cent level of significance has been stable overtime.

5. CONCLUSION AND RECOMMENDATIONS

This study attempts to explore the link between globalization and the manufacturing sector in Nigeria. The study examined the relationship between the variables by analyzing their long-run properties as well their short-run dynamics. The econometric results from the error correction model revealed that foreign income lagged by one-year period and the gross domestic product at lag two demonstrate far reaching impact on the manufacturing sector in Nigeria and the exogenous variables used in the study were quite significant. The negative sign of the ratio of foreign price to the domestic price as well as export fall short to achieving improvement in the manufacturing sector output. This unexpected sign of the coefficient of these variables can also be attributed to the myriads of other factors. This scenario possibly suggests that export and the ratio of foreign price to domestic price do not have a proportional impact on the manufacturing sector in Nigeria.

On the basis of this, the study recommends the following: The government should apply expansionary fiscal policy (increase in government spending and reduction in tax) as this will stimulate increase in investment gears towards increasing the volume of export goods abroad thereby enhancing the ratio of foreign price to domestic price. The study also recommends low interest to stimulate productive economy to enhancing globalization vis-a-vis the manufacturing sector in the Nigerian economy. The government should monitor its spending particularly on the capital projects in order to achieve the desire objectives gears towards a better economy.

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