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Globalization and Manufacturing Output in Nigeria

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Abstract
The study examined the effect of globalization on manufacturing output in Nigeria from 1981-2017. The data for the study were analyzed using inferential statistics. Data were collected on import, export, GDP and manufacturing output from Central Bank of Nigeria statistical bulletin. The study used unit root test, co-integration and Vector Error Correction Model. To test the causality and co-integration between globalization and manufacturing output, initially, the stationary properties of the time series was checked for unit root test using Dickey Fuller test. Findings of the Johansen and Josulius co-integration test revealed that there is a long-run relationship between trade openness and manufacturing output in Nigeria. In the same vein, the vector error correction model showed that causality runs from trade openness to manufacturing output which implies that trade openness caused increase in the manufacturing output in Nigeria. The study suggested that trade barriers to export- import be discouraged by the government of Nigeria since the study established both short-run and long-term relationship between trade openness and level of manufacturing output in Nigeria.

Keywords:*Globalization, Manufacturing Output, Trade Openness and Nigeria*

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I. Introduction

With the increase of transportation, communication and technology links among countries of the world, the movement of finance and factors of production among countries has tremendously improved. This improvement has caused an upward movement in globalization. Globalization is usually referred to as the process of integration of goods and capital markets in world trade (Kilicarslan&Dumurul, 2018). When we talk about globalization, we think of the economy as being globalized. We mean that the whole of the world is increasingly behaving as though it were a part of a single market, with interdependent production, consuming similar goods, and responding to the same impulses.

Globalization is now generally accepted as an irresistible force affecting every aspect of human life in today's world. Unobstructed trade of goods and services, and prodigious development of information and communications technologies (ITCs) and socio-cultural integration across the globe appears to be a major consequence of globalization. Ipso facto there is little scope to escape from such a reality (Mizanur, 2014).

Nigerian government has put in considerable effort at improving bilateral relation in the economy; its net effect is yet unclear. This raises concerns about the tradeoff benefit between trade openness as a proxy to globalization and contributions to the manufacturing output in Nigeria (Odebode& Aras, 2019). Manufacturing sector plays an important role in economic development hence the sector is considered an engine of growth for every economy due to its high potential for increased productivity, higher technological advancement, increased capital accumulation and economies of scale. Manufacturing sector also has the potential for job creation, production of varied and quality products as a result of technological advancement. It generates income to households and revenue to government through taxes and It also helps in reducing trade deficits. Furthermore, countries with vibrant manufacturing sectors are less impacted by global economic shocks because of diversified export products.

The transformation of raw materials into finished and intermediate products for local consumption and export is achieved with the help of this important sector. The absence of a functional manufacturing sector would lead to overdependence on importation of foreign goods which constitutes a leakage in the economy. Manufacturing for export creates employment within the domestic economy as well as enhances value addition to primary products for export. The combined effects of a viable manufacturing sector invariably result in favourable balance of trade (BOT). Globalization, therefore, is a process that transcends national borders, combines national economies, cultures, technologies and governance, and produces the complex relationships of interdependence (Gygli, Haelg, Potrafke, & Sturm, 2019).)

In 2018, the contribution to the economic growth was driven by the Agriculture and Industry sectors which contributed 0.53 and 0.30 per cent respectively, while Trade sector had a negative contribution and services sector only 0.11. This was the trends in the year 2017, 2016,2015 and 2014 respectively corroborating

the relative importance of the sector (Central Bank of Nigeria Annual Report, 2017). It is this basis that this study intends to examines the impact of globalization on manufacturing output in Nigeria.
The null hypothesis is formulated:
H_{01}: Trade openness has no causal effect with manufacturing output in Nigeria

II. Literature Review

This section conceptualizes globalization, manufacturing output, conceptual framework and empirical studies

2.1 Concept of Globalization

According Odebodeeta l.(2019), globalization refers to greater interdependence and interconnectivity among countries of the world. It has to do with increased interaction of products and resources across nations through trade, immigration and foreign investment via international flows of goods and services, people, investment in equipment, factories, stocks and bonds. According to Subhan, Mehmood and Sattar (2013), globalization is the integration of industries, markets, economies, policymaking and culture across a wide geographical area. It connotes free flows of goods, services, capital, ideas, information and people. Rapid globalization has narrowed distance among the world's population. Samad (2007) describes globalization as the process in which national and regional economies have become integrated and inter-dependent through global network of trade, immigration, communication and transportation.

Stiglitz (2002) perceived globalization as the removal of barriers to free trade and the closer integration of national economies. Globalization connotes worldwide interpenetration and interdependence of all sectors i.e. economic, political, social, cultural, and military (Barakat, 2007). Samuelson (2012), a political economist, opined that globalization is a double-edged sword: A powerful vehicle that raises economic growth, spreads new technology and increases living standards in rich and poor countries alike but also an immensely controversial process that assaults national sovereignty, erodes local culture and tradition, and threatens economic and social stability.

According to Rahman (2014), globalization involves costs, risks, challenges, conflicts, loss and potential benefits. Some scholars denote it as "globaphile" (pro-globalization), meaning that it is pro-poor, while others view it as "globaphobe" (anti-globalization), meaning that free trade is inherently bad for poor states. There are supporters and critics of globalization. Supporters equate globalization positively with openness, cosmopolitanism and integration, whereas critics equate it with western imperialism, corporate domination and rampant consumerism. In a globalized world the integration of global political, cultural, social norms, intensification of activities, and interconnectedness results in a concept akin to a "shrinking globe".

Globalization is perhaps the most profound source of international transformation since the industrial revolution. Pscaciu(2014) opined that globalization represents the process by which the geographical distance becomes a less important factor in the establishment and development of transborder relations of economic, political, socio-cultural origin. Globalization can also be said to refer to all the processes by which nations of the world are conscripted in a single world society i.e. the global society.

Globalization comes with lots of good prospects, but also some negative and uncontrolled issues, sometimes constituting insecurity in different ways. Nevertheless, this global phenomenon is unstoppable, but mankind has to find the means for governing and controlling its effects on people and environment, in order to take on only its benefits, and trying to stop its negative influences. Economists consider globalization as a step towards a fully integrated world market. Political scientists consider globalization as the decline of territorial sovereignty and rise of nongovernment power players. The business school defines the term to mean a borderless world. In this article, globalization refers to free trade, open market economy, privatization and interconnectedness of the Nigerian economy with global economic systems.

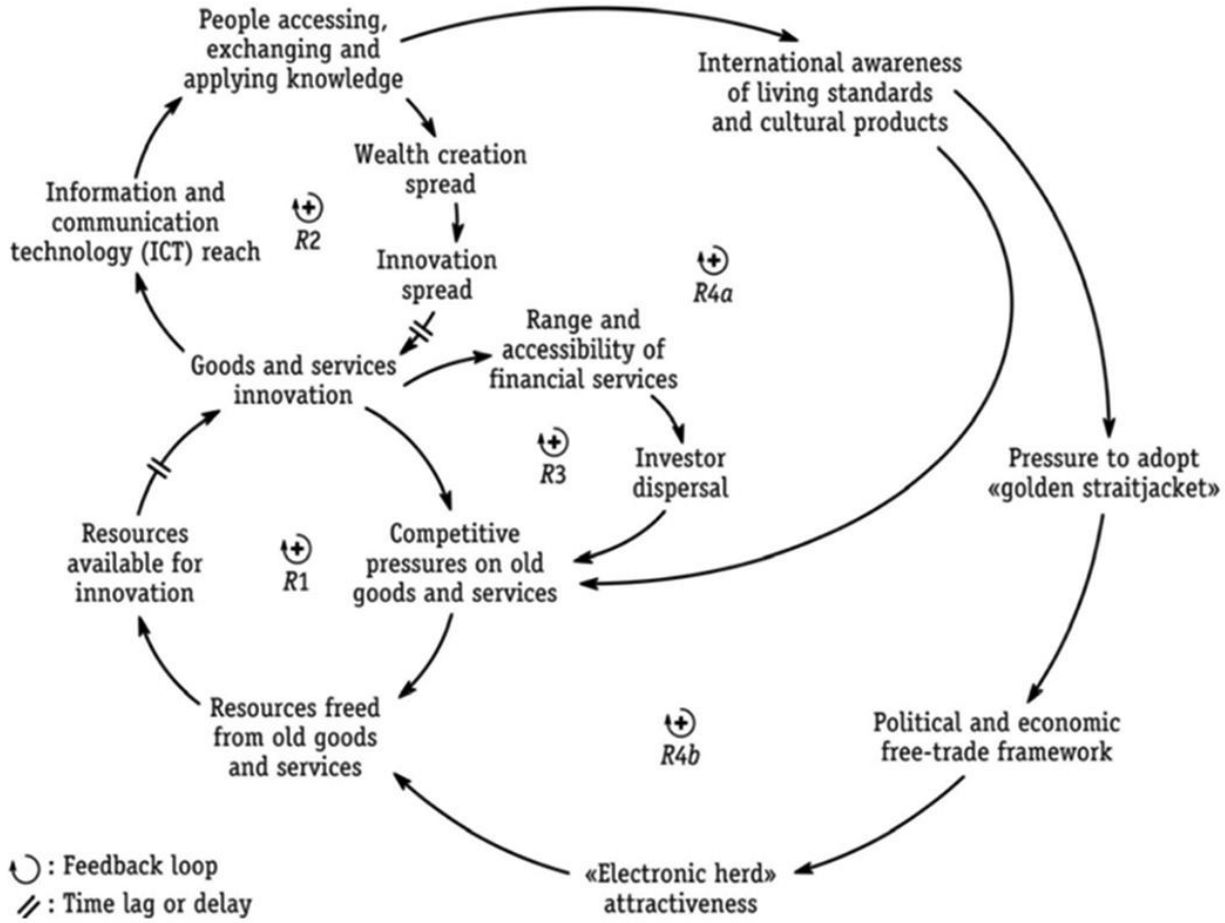
Several advantages have accrued from globalization as well as challenges. It encourages producers to benefit from free movement of labor through sharing of skills, ideas and technology. Globalization has brought about competitiveness in markets, which have reduced monopoly profits and incentive by enabling businesses to find cost reducing innovations. It has also opened up capital markets that allow developing countries to borrow money that cover the gap on domestic savings (Ocloo, Akaba, &Worwui-Brown, 2014). Awareness among consumers of challenges from various phenomena such as climate change, global warming as well as income wealth inequality have increased.

Despite the above advantages, globalization has brought many challenges including inequality in wealth and income with poorest people not benefiting from basic technologies and public goods (Aris, 2007). Globalization has also led to inflation due to strong demand for food and energy causing rise in commodity prices **(**Abu Bakar, Mad, & Abdul Latif, 2006). It has led to vulnerability to external economic shocks because of interdependence among economies of the nations (Tarhan, 2007). Globalization can also be linked to loss of diversity in culture and economy as global multinational brands dominate domestic markets in many countries (Kohut&Wike, 2008).

Cycle of Globalization

According Kılıçarslan and Dumrul(2018), in globalization cycle depicted in the diagram below, "innovations in goods and services" can be taken as a starting point. "Innovations in goods and services" affect both the old goods and services (R1), information and communication technologies (R2) and the proximity and accessibility of financial services (R3). "Innovations in goods and services" cause resources to become open to innovation by getting rid of old goods and services creating competitive pressures on old goods and services. Over time, these resources can lead to more goods and service innovation (R1). On the other hand, innovations in goods and services lead to increased access to information and communication technologies.

Figure 1: The globalization cycle



Source: Georgantzas et al. (2009. p. 4)

Thus, a large number of people are provided with access to information, exchange of information and use of information. In addition, innovations in goods and services can be used to create welfare and geographically spread innovation and over time lead to new innovations in goods and services. Finally, "innovations in goods and services" can increase both the scope and the accessibility of financial services (R3). The geographical spread of information means increasing international awareness of living standards and cultural products, creating competitive pressures on older goods and services (R4a). However, international standards of living and international awareness of cultural products can force nation states to "a golden straitjacket." Thus, it strengthens the established components of the political and economic free trade framework. This may increase "electronic market attractiveness." In this way, global investors provide financial resources to resources saved from old goods and services (R4b). (Georgantzas, Katsamakas& Solowiej,2009).

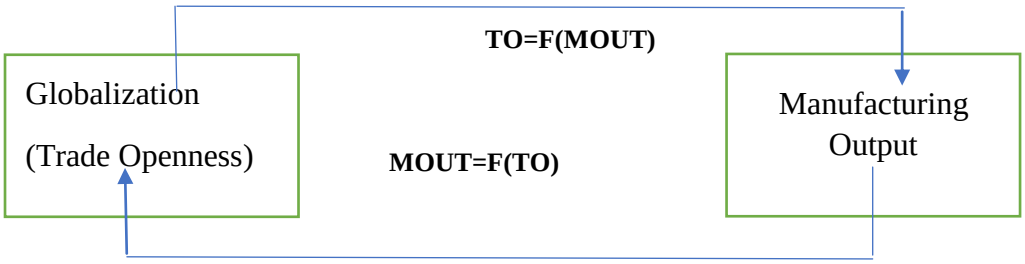
2.2 Manufacturing Output

Globally and country specifically, the manufacturing sector is the engine of economic growth and development as it diversifies the economy and makes it more elaborate. It also consists of industries that are involved in the making of goods and articles traditionally (input) or with machinery with wide range of products (output)(Nwokoro, 2017).According to Dickson (2010), manufacturing sector accounts for a sizeable share in

the industrial sector in developed countries. In others words the amount of value added, self-sufficiency or efficiency in output of a country's manufacturing sector determine to a larger extent if the country is developed, developing or underdeveloped. According to Charles (2012), manufacturing industries create job opportunities which helps diversify the economy from agrarian third-world economy in the process helping the nation to increase its foreign exchange earnings.

In recent times, manufacturing industries in Nigeria have been characterized by declining output, by extension employment generation, which is caused largely by inadequate electricity supply, smuggling of foreign products into the country, trade liberalization, globalization, high exchange rate, and low government expenditure (Eze&Ogiji, 2013). However, the basic inference is that increased labour productivity in manufacturing sector as a result of trade openness will leads to rise in the growth of manufacturing output because of the effect of increased economies of larger production and technical progress (Onakoya, 2018).

2.3 Conceptual Framework



2.4 Theory of Comparative Advantage

The Classical theory of trade determination is based on Comparative Advantage theory (Orgi, Anthony-Orgi, Nchege&Okafor, 2015).The law of comparative advantage indicates that a nation can gain by spending more of its resources in the production of goods where it has relative advantage. Hence, if a good or service can be obtained more economically through trade, it would be rational to trade for it rather than expanding resources producing it domestically at a less competitive cost. The central issue is how the available resources can be used to obtain each good at the lowest possible cost. When trading partners use more of their time and resources producing things they do best, they are able to produce a larger output that provides the source for mutual gain.

International trade also results in gains from the competitive process. Competition is essential to both innovation and efficient production. International competition helps keep domestic producers on their toes and provides them with a strong inducement to improve the quality of their products. Also, international trade usually weakens monopolies (Odebodeeta l., 2019).

2.5 Empirical studies

Odebodeeta l. (2019) examined the impact of globalization on manufacturing output in Nigeria using structural vector autoregressive (SVAR) approaches, from first quarter 2010 to fourth quarter 2018. 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, which implies that exchange rate is very important to manufacturing sector in Nigeria. In the same vein, transportation, financial integration and globalization were affected positively and significantly by exchange rate fluctuations to manufacturing sector.

Ali, Obayori and Obayori (2018) examined the impact of globalization on manufacturing sector growth in Nigeria. Data collection covered the period of 1980 to 2016 sourced from 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 study found that there is a short-run and long-run casual effect between globalization and manufacturing growth in Nigeria.

Aluko, Akinola and Fatokun (2004) explored the impact of globalization on the Nigerian manufacturing sector with focus on selected textile firms from Lagos, Asaba and Kano. The data were collected using both qualitative and quantitative methodologies. The former was collected through interviews while the latter was collected via structured questionnaire and documents. The population of the study was 630 respondents. The respondents were selected using multiple sampling techniques comprising of stratified random sampling, quota sampling and systematic sampling techniques. The data were analyzed using parametric and non-parametric statistics. The study discovered that globalization had strong adverse effects on capacity utilization in the manufacturing sector.

III. Research Methodology

Ex-post facto research design was used in this study for the reason that the study is aimed at discovering the cause-effect relationship between the variables. The ex-post facto research design is a scientific inquiry in where direct control of variables are outside the influence of the researcher and free from manipulation. The population of the study is made up of all the registered manufacturing companies in Nigeriaand according to national bureau of statistics collaborative survey (2013), the population is 2312 manufacturing companies in Nigeria. The study data were analyzed using inferential statistics. Data on import, export and GDP and manufacturing output were sourced from the Central Bank of Nigeria Statistical Bulletin. Unit root test, cointegration and Vector Error Correction Model analyses were conducted on the data sourced. In order to test the long-run causality using Johansen and Josuliusco-integration between globalization and manufacturing output. Initially, the stationary properties of the time series are checked using Dickey Fuller test. The regression equation with a constant and a trend is stated below:

$\Delta Y_t = \beta_1 + \beta_2 + \delta Y_{t-1} + \alpha i \Sigma^{M}_{i-1} \Delta Y_{t-1} + ej$ (1)

Where Δ is the first difference operator and εt is the stochastic error term and δ is the number of lags in the variable. The null hypothesis (H0) of a unit root reveals that the coefficient of Yt-1 is zero while alternative hypothesis (H1) implies Yt is stationary. According to Akyuz and Opusunju (2019) If the null hypothesis is rejected then the series is stationary and no differencing in the series is essential to establish stationarity or the null hypothesis of nonstationary is rejected if the ADF test statistic in absolute term is more than the critical test value at 5% level of significance. The hypothesis of co-integration is accepted if the number of co- integrating relationships is greater than or equal to one. The decision rule compares the likelihood ratio to the critical value for a hypothesized number of co-integrating

relationships. If the likelihood ratio is greater than the critical value, the hypotheses of co- integration is accepted, if not it is rejected.

The study also emphasizes, if cointegration among variables strictly shows a long run equilibrium relationship; in fact, there may be disequilibrium in the short run. To investigate the short run dynamics among the time series variables concerned, Vector Error Correction Model (VECM) is developed in this study. Vector Error Correction Model (VECM) is used to correct the short-run disequilibrium among the variables in the model and also to reconfirm the direction of causality of the variables in the model (Ojeleye, Opusunju& Ahmed, 2020).

The mathematical model of this study is stated below

$Y = a + bx$ (2)

y = dependent variable
a = intercept or constant
b = the coefficient and
x = independent variable

However, this mathematical model is expressed as a functional model based on the objectives of this study. The study incorporated trade openness and manufacturing capacity utilization in Nigeria as showing below:

$TO = f(MOUT)$ (3)

The model is also expressed as:

$MOUT = f(TO)$ (4)

All the series are expressed in a log-linear form in equation from 3 & 4 into equation 5 and 6. This is an account that log linear specification provides consistent and reliable result (Schahbaz, Tang &Shabbir, 2011). It is expressed as follows:

$LogTO = (logMOUT)$ (5)

$LogMOUT = (logTO)$ (6)

Using the above models, the Vector Error CorrectionModel specifications for hypothesis one is presented below:

$log TO = \alpha_0 + \alpha_1 \Delta log TO + \alpha_2 \Delta log MOUT_{t-i} + Ect\text{-}1 + \epsilon_{t1}$ (7)

$log MOUT = \alpha_0 + \alpha_1 \Delta log MOUT + \alpha_2 \Delta log TO_{t-I} + Ect\text{-}1 + \epsilon_{t1}$ (8)

3.1 Data Analysis Technique

Augmented Dickey-Fuller unit root testing,Johansen and Josulius co-integration and vector error correction model (VECM) were all used to analyze the data using E-views 9.

3.2 Augmented Dickey-FullerUnit Root Testing

The table 1 below showed that LMOUT and LTO are stationary at first difference due to the fact that the values of its ADF test statistics 5.70 for LMOUT and -8.48 at first differences were greater than their corresponding critical values of -3.67, -2.96, -2.62 for LMCU and -3.66, -2.96, -2.61 for LTO at 1%, 5% and 10% level of significance respectively. Since they are both significant at first difference, they have both past the perquisite to conduct cointegration test, granger test and vector Error Correction Model test (Akyuz eta ls, 2019).

Table 1

Unit Root Test on the Variables.

Variables	Level of stationarity	ADF-statistic	Significant values 1%, 5%, 10%	Order of Integration	Prob. (5%
LMOUT	constant (exogenous): Trend	5.70	-3.67, -2.96, -2.62	1(1)	0.0032*
LTO	constant (exogenous): Trend	-8.48	-3.66, -2.96, -2.61	1(1)	0.0000*

Source: Author's Computation using E-view 9.00. Probability values are indicated by *.

3.3 Johansen and Josulius Co-integration Test

Table 2 below is the Johansen and Josulius co-integration test result. The result showed that there is a long-run relationship between LTO and LMOUT at 1% level of significance. The result of the Trace test statistic of 78.50746 is higher than the critical value of 15.49471 at significant level of 1% revealed that there exists a long run relationship between the two values. Similarly, the result of the Max-Eigen test of 98.49713 is also higher than the critical value of 14.46260 at 1% significant level showing long run relationship between trade openness and manufacturing output. Therefore, there was a long-run relationship between Trade Openness and Manufacturing output in Nigeria.

Table 2

Variables	Trace Stat	Critical Value	Max-Eigen Stat	Critical Value	Probabilities
LMOUT& LTO	78.50746	15.49471	78.49713	14.46260	0.0000/ 0.0000

Source: Researcher's computation using E-views 9.0, 2020.

3.4 Vector Error Correction Model

Table 3 below showed that about 0.2% of short run disequilibrium was corrected by manufacturing output in Nigeria (LMOUT) in each period. It also showed that 1.8% of short run disequilibrium was corrected by Trade Openness in each period. It also showed the t-statistics with their respective standard error values which implied that when the t-statistics in one variable was greater than the other variables numerically (ignoring the sign), it means that causality move from that variable to the other variable and the direction of causality can be determined by comparing the t-statistic of the two variables. From the table 3 below, the study discovered that causality runs from LTO to LMOUT which implied that Trade Openness caused increase in the manufacturing capacity output in Nigeria and therefore we reject the null hypothesis which states trade openness has no causal effect with manufacturing output in Nigeria. This is in tandem with the work of Odebode eta l. (2019) who found that manufacturing output responded significantly to the foreign shocks emanating from globalization.

Table 3

Error Correction:	D(LMOUT)	D(LTO)
CointEq1	-0.200475	-1.79E-06
Standard Error	(-0.37329)	(-8.0E-07)
t-statistics	[0.53705]	[-2.25054]

Causality: Causality runs from LTO to LMCU.
Source: Researcher's computation using E-views 9.0, 2020.

IV. Conclusion and Recommendations

The study examined the effect of globalization in term of trade openness on manufacturing output in Nigeria. Data were sourced from Central Bank of Nigeria Statistical Bulletin. The data were found stationary at first difference using Dickey Fuller Unit root testing. Johansen and Josulius co-integration test result showed that there is a long-run relationship between trade openness and manufacturing output at 5% level of significance both for trace statistics and max-eigen statistics. Lastly, short run disequilibrium was corrected by

manufacturing output in Nigeria in each period using victor error correction model. It found that causality runs from trade openness to manufacturing output .

Based on the findings of the study the following recommendations are advanced

1. Trade openness is a necessity for improved manufacturing output in Nigeria
2. Government and relevant agencies should enact laws and put necessary policies in place to encourage trade openness hence, globalization
3. Government should create enabling environment to encourage public-private collaboration to foster trade openness

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