

Causal Relationship between Foreign Direct Investment and Manufacturing Output in Nigeria

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Abstract

This study examines the causal relationship between foreign direct investment and manufacturing output in Nigeria. Using the industry production for the determinant of manufacturing output, time series data was compiled from Central Bank of Nigeria and National Bureau of Statistics spanning for 36 years, 1981-2016. The study adopted ex-post facto research design. The population of this study comprises of all manufacturing companies in Nigeria and the sample size is 176 quoted manufacturing companies in Nigeria according to Nigerian Stock Exchange 2017. Descriptive analysis in the form of mean, median and standard deviation are used to analyze the data. Augmented Dickey-Fuller (ADF) test was used for Unit root test to determine whether the data are stationary or non-stationary. The Johansen test was conducted to test for long run relationship among the variables. The finding reveals that there is a long run relationship between foreign direct investment and output of manufacturing sector in terms of industry production. With the long run relationship established, the vector error correction mechanism are employed to determine the degree to which equilibrium behavior drives short run dynamics with 7% and 33% speed of adjustment of the variables. The granger causality test shows that foreign direct investment granger causes industry production in Nigeria in the long run and also the variables reinforce each other in the short run. The study therefore, found that causality run from foreign direct investment to industry production both in the long and short run in Nigeria. The study recommend that Nigerian government should further adopt an aggressive policy reforms to boost the confidence of foreign direct investors to lure investments into the country since it assist in increasing manufacturing output.

Keywords:

Foreign direct investment, Manufacturing output, Industry production, Vector Error Correction mechanism

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Background to the Study

Foreign direct investment (FDI) in this recent time became ever more important in developing countries of the world and growing number of developing countries like Nigeria ensuing in attracting considerable amounts of FDI. Foreign direct investment was not fully embraced by Nigeria and other African countries as an essential feature of increase in output in the manufacturing sector. The purpose of foreign investment is to serve as a means of augmenting the less-developed countries' domestic resources to effectively carry out her developmental programmes, promote rapid industrialization and eventually raise the output of any business sector such as manufacturing sector. Therefore, the importance of foreign direct investment is to improve the output of manufacturing sector in any less developed countries of the world. However, if Nigeria and other African countries of the world creates conducive environment for FDI and its potential benefits can include employment generation and increase in turnover of the sector.

Foreign direct investment can influence the output of manufacturing in any given country and also output of manufacturing can influence foreign direct investment in any developing countries of the world. Foreign direct investment has attracted a great number of attentions of developing countries since the development of manufacturing sector is set toward investment in capital and technology. The expatriate coming to invest in Nigeria provides these and ensures adequate output in the sector in terms of turnover. The turnover or output of manufacturing sector increases with the helped of FDI inflow in Nigeria and firm face with a lot of competition and these firms competition enable the indigenous manufacturing industries to tried and compete favorably by learning to increase in their own output.

Over the years, government of Nigeria has encouraged foreign direct investment through trade openness and there was a relative increase in FDI inflow into Nigeria in 1990s and the diversification of FDI into the manufacturing sector in particular. However, In spite of the huge amount of FDI inflow into the Nigerian manufacturing sector ranging from US\$2.96 billion in 2003 and it rose to US\$4.44 billion in 2004 and this figure rose again to US\$ 5.08 billion in 2009 (World Bank, 2012), yet the output in the manufacturing sector is on the decline.

From the extant literature, we realized that studies have been conducted on foreign direct investment and output of manufacturing sector in West Africa and Nigeria but none of these studies used 36 years from 1981 to 2016 to examine causal relationship between foreign direct investment and output of manufacturing sector in Nigeria.

Objectives of the Study

The objective of this study is to examine the causal relationship between foreign direct investment and output of manufacturing sector in Nigeria. The specify objectives of this study is to evaluate the causal relationship between foreign direct investment and industry production in Nigeria.

The study is restricted to causal relationship between foreign direct investment and output of the manufacturing sector in Nigeria. The period since independence, 1960 to 2016 has been chosen as the reference period for this analysis. However, owing to the dearth of data, the

analysis of the causal relationship between foreign direct investment and output of the manufacturing sector in Nigeria during the period 1981-2016 is examined. This period is chosen because it covered the period of Nigeria's new birth of democracy and the borders of Nigeria was widely opened to foreign investors to come in and invest especially during the democratic era. The period before 1981 was not considered because of disruption of economic activities as a result of civil war of 1967-1970, the indigenization decree that came into effect from 1972 and 1977, the prolonged military rule that ended in 1979 were avoided and the period after 2016 too is not considered because data on variables of study is not richly available. The author depends entirely on secondary data obtained from Central Bank of Nigeria and National Bureau of statistics.

Significance of the Study

The significance of this study will reveal the outlook of the work which will expose the extent to which FDI contribute to output of manufacturing sector in Nigeria thereby highlighting some obstacles hindering increase in industrial output. This work shall be relevant to the government policies and entrepreneurs directing them on manufacturing growth plan. It shall add to the already existing literature in FDI and manufacturing growth in Nigeria. Furthermore, the work shall assist potential industrialist, economist, investors and other related users of this veritable material in this field of study, it is interesting to note that attaining an optimum industrial output is the shortest route to achieve industrialization and national development. The significance of this thesis will ensure that managers understand the impact of FDI on the output of manufacturing sector in Nigeria. This shall also inform the policy makers and government on the negative impact of FDI on the output growth of manufacturing sector in Nigeria.

Study Hypothesis

The hypothesis of this study are stated below:

H₀, There is no causal relationship between FDI and industry production in manufacturing sector of Nigeria.

Concept of Foreign Direct Investment

As per Chen, (2000), foreign direct investment is the interest in which a firm secures a considerable controlling enthusiasm for an outside firm (over 10 percent offer) or sets up an auxiliary in an outside nation. Foreign direct investment incorporates mergers and acquisitions, constructing new offices, reinvesting benefits earned from abroad operations and Intra Organization credits (Hannon and Reddy, 2012). Foreign direct investment (FDI) is the procedure where individuals in one nation acquire responsibility for with the end goal of picking up control over the creation, dissemination and different exercises of a firm in an outside nation (Moosa, 2002). Foreign direct investment is a cross-fringe venture made by an occupant in one economy (the immediate financial specialist) with the target of building up an enduring enthusiasm for an endeavor (the immediate speculation undertaking) that is inhabitant in an economy other than that of the immediate speculator (OECD, 2008). Glass and Saggi (2009), contributes that foreign direct investment alludes to a development of capital that includes possession and control of a firm in another nation. FDI is expected to enlarge local capital in this way empowering the efficiency of residential speculations.

As per Anawor, Ukwani, Ibiam and Ezekwem (2013) FDI alludes to speculation made to gain an enduring administration premium (for the most part no less than 10 % of voting stock) and getting no less than 10% of value share in an undertaking working in a nation other than the nation of origin of the financial specialist. As indicated by Nwadike (2007), foreign direct investment is a sort of speculation whether in genuine or monetary resources over the national limits of the speculators. In any case, outside direct venture incorporate the human capital, merchandise and enterprises, innovation, ideas, administration standards exchange from one nation to different nations particularly the creating nations. It is the venture around one nation into another nation or it is a cross outskirts speculation with the less created nations of the world. Otepolo (20012) states that foreign direct investment is the most critical wellspring of outside assets streams to creating nations throughout the years and has turned into a huge piece of capital arrangement in these nations, however their offer in the worldwide circulation of FDI keep on remaining little or notwithstanding declining. As indicated by Althukorala (2003), FDI gives genuinely necessary assets to creating nations, for example, capital, innovation, administrative aptitudes, entrepreneurial capacity, brand and access to business sectors which are fundamental for creating nations to industrialize, create, make occupations and assault the destitution circumstance in their countries. Adeoye (2009), characterize FDI as the long haul speculation that mirrors the goal of an enduring premium and control by an inhabitant substance of one economy (the immediate speculator) in a venture that is inhabitant in another economy (Coordinate venture endeavor). Remote direct venture, a noteworthy segment of universal capital streams, alludes to speculation by multinational organizations with central station in created nations.

Annaek (2007) characterizes foreign direct investment as the procedure whereby individuals in one nation acquire responsibility for with the end goal of picking up control over the creation, circulation and different exercises of a firm in a remote nation. As per Uzoka, (2012) foreign direct investment is the inflow of outside salary into a specific economy through speculation which includes multinational enterprises. While Njeru (2013) likewise take note of that FDI is the cross-fringe interest in which inhabitant in one economy (the immediate financial specialist) secures an enduring enthusiasm for an endeavor in another economy (the immediate speculation undertaking) World Bank, (2004) characterizes FDI as the net inflows of venture to get an enduring administration premium (10 percent or a greater amount of voting stock) in an endeavor working in an economy other than that of the speculator. It is likewise the entirety of value capital, reinvestment of profit, other long haul capital, and here and now capital as appeared in a critical position of installments.

UNCTAD (2008) characterizes FDI as a long haul connection between organizations in the source nation (the speculator) and another organization in the host (nation of venture). Outside Direct speculation (FDI) alludes to a development of capital that includes proprietorship and control of a firm in another nation. As per Umeora, (2013) opined that the Adjust of Installments Manual (BPM5) distributed by the Universal Money related Fund(IMF) characterizes Remote Direct Speculation "as a venture made to procure enduring enthusiasm for endeavors working outside the economy of the financial specialist. Bartels (2000) is of the supposition that FDI, in its temperament, is a worldwide record that reflects securing a durable enthusiasm by an inhabitant element of one nation into an occupant

element of another nation. Outside direct speculation could go to the capital bringing in nation as an auxiliary of a remote firm. It could likewise drop by methods for arrangement of an organization in which a firm in the contributing organization has value holding or the production of settled resources in the other nation by the nationals of the contributing nation (Obadan 2004).

As indicated by Nwankwo (2006), FDI makes work and goes about as a vehicle of innovation exchange, gives prevalent abilities and administration strategies, encourages neighborhood firms' entrance to worldwide markets and expands item differing qualities. Ayanwale (2007) states that most nations endeavor to draw in FDI in light of its recognized favorable circumstances as a device of monetary improvement. Perpetually FDI exists when an organization or firm puts specifically in offices or generation in an outside nation over which it practices control successfully. Assembling FDI involves setting up creation offices in outside nations (e.g., Coca-Cola building offices in just about 200 countries). Anderson (2004), trust that the inside assets of a nation can be supplemented by drawing in remote venture and by getting helps. Outside direct Speculation (FDI) is a venture made by an organization or individual in one nation in business interests in another nation, as either setting up business operations or securing business resources in the other nation, for example, possession or controlling enthusiasm for a remote organization. Remote venture can be arranged into two: portfolio and direct speculation.

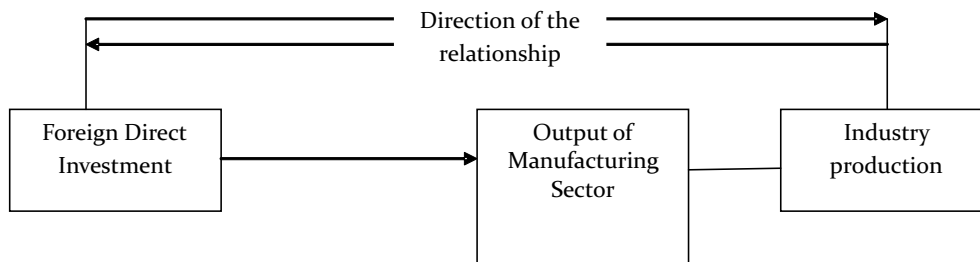
Concept of Manufacturing Output

The industrial output is the total output of all the facilities producing goods within the country. The manufacturing output is the output of all factories in a country, is a sub-set of industrial output. Manufacturing production refers to the total production output from industries that consist of producing goods in factories or plants for a specific time period. Financial times (2017). Manufacturing output is what an industry produces as a national total output in spite of its present poor performance; the manufacturing sector is the major sources of hope for sustainable growth and development (Obichukwu, 2013). Manufacturing output is a pre-requisite for economic development. (Mjer, 1975), sees Manufacturing output as the process of developing an economy founded on the process of manufacturing of goods. (Ezekwe, 1996) defined industrial output as an extensive development of the manufacturing and productive system of an area, developing countries view an industry as the leading essential for high rate of present and future growth and development. Industry is an impetus realized to satisfy the rapid growing demanded for manufactured goods which developing nations could not maximally attained to because of balance of payment difficulties.

Manufacturing is a subset of the industrial sector (processing, quarrying, craft and mining). Manufacturing, thus involves the conversion of raw materials into finished consumer goods or intermediate or producer goods. Manufacturing like other industrial activities creates avenue for employment, helps to boost agriculture and helps to diversify the economy while it helps the nation to increase its foreign exchange thus helping local labour to develop skills. It minimizes the risk of over dependence on foreign trade and leads to optimum utilization of available resources. The degree of manufacturing is a measure of the extent to which the other components of the industrial sector are effectively utilized. Manufacturing turnover is the

volume of goods produced and industrial services provided during the reference period at current prices. It is the income from sale of goods and provision of services, from which trade discounts, as well as value added tax and other taxes directly related to sales are deducted

Conceptual Framework



Researcher's Model

The above model is design in this work to indicate the causal relationship that existed between the variables in this study and this implies that the direction of the move is from foreign direct investment and the inflow of FDI influence industry production in Nigeria. The model is developed for this research work and to understand how each variable related to each other. The model proved that there is positive relationship between the variables and they influence one another. The model explained that the inflow of FDI is significant in improving the country's industrial production and this would go a long way in solving industry production problem in the society.

Empirical Review

Osisanwo (2013) analyze the impact of foreign direct investment on manufacturing output growth in Nigeria between a decade after independence (1970) and 2011. He use econometric model and log of foreign direct invest (FDI), first lag of real manufacturing output level (MAN_{t-1}), degree of openness (OPEN), investment human capital development (INV), and inflation rate (INF) in Nigeria during the review period. While, manufacturing output growth is proxies by real manufacturing output growth as the regressand. The ordinary least square (OLS) method were adopted and the result revealed that the first lag of real manufacturing output level (MAN_{t-1}) and inflation (INF) are significant factors influencing the growth rate of Nigerian manufacturing industry, while manufacturing output is insignificantly and inelastic of foreign direct investment in Nigeria.

Ebekozien, Ugochukwu and Okoye(2015) analysis on the inflow trends of Foreign Direct Investment investigated in the Nigerian construction industry with a view to studying the pattern of flow and assessing the effect of increased flow of FDI on the industry. Annual time series archival data from the central bank of Nigeria and the National Bureau of Statistics served as the data source. The data collected was analyzed using simple percentages, regression analysis, Duncan Multiple Range Test and Granger Test, while the hypotheses were tested with the aid of the test. Results revealed that there is poor flow (or an insignificant flow) of FDI into construction sector when compared to other sectors of the economy. According to Granger sense, the Granger Causality is bi-directional, suggesting that FDI is an important prerequisite and catalyst for sustainable growth and development in construction

and on the other hand, the level of infrastructural facilities available on ground is a prerequisite for attracting foreign direct investors. A high positive correlation or significant relationship between FDI and the construction sector further confirm this result.

Okoli and Agu (2015) assess the impact of foreign direct investment flow on the performance of the manufacturing firms in Nigeria. Using manufacturing value added (MVA) for the performance of manufacturing firms, time series data was compiled from World Bank and Central Bank of Nigeria Statistical Bulletin spanning for a period of 40 years. The researcher used an OLS estimate with FDI modeled as a quadratic function to account for its turning point and the VECM to ascertain both the long run and the short run causalities running from the explanatory variables to dependent variable. The results obtained suggest the need for Government actions to be geared towards strategically maintaining and sustaining policies that will help encourage FDI inflows especially in the long run since a positive effect on the manufacturing value added was only feasible in the long run as well as promoting an efficient and enabling macroeconomic environment on which manufacturing firms can thrive.

Aysha, Muhammad and Sara (2011) examine the impact of foreign direct investment on manufacturing output growth during 2006-2010 and they used Dougherty model. Moreover, paired t-test was employed to compare the study. StataSE Version12, SPSS Version 16 and Microsoft Office Excel2007 were used to analyze the data. Regression results show an insignificant impact of foreign direct investment on manufacturing output growth.

Patience (2011) examines the impact of foreign direct investment on manufacturing output growth of West Africa. The study is conducted across the Economic community of West African States (ECOWAS) which is the most popular regional economic community in Africa. Data was collected from banks annual reviews. It was found that foreign direct investment contributes to manufacturing output growth in West Africa.

Theoretical Framework

New Growth Theory

The Focal suggestion of new growth hypothesis is that, unlike land and capital, learning is not subject to consistent losses. New development hypothesis suggests two imperative focuses. Initially, it sees mechanical advance as a result of monetary action. Furthermore, new growth hypothesis recommends that learning and innovation are portrayed by expanding returns, and these expanding returns drive the development procedure (Carkovic and Levine, 2002). Subsequently, development is endogenous in new development hypothesis instead of exogenous as in old development hypothesis. Interest in human capital adds to expanding returns in the creation work and the more assets dedicated to innovative work, (McAleese , 2004)

According to Adebite and Ayadi, (2010), the capital collection FDI is relied upon to create non-curved development by empowering the joining of new sources of info and remote advances in the generation capacity of the FDI beneficiaries' nations. Also, the exchange of cutting edge innovation reinforces the host nation's current supply of learning through work preparing, aptitude securing, the presentation of option administration rehearses and hierarchical game plans. As an outcome, FDI expands efficiency in the beneficiary economy,

and FDI can be esteemed to be an impetus for household speculation and innovative advance.

Governments have been attempting to lift the nation out of the monetary doldrums without making progress as sought. Each of these administrations has not concentrated much consideration on venture particularly remote direct speculation which won't just ensure work yet will likewise affect emphatically on monetary development and advancement. FDI is expected to diminish the contrast between the coveted gross residential venture and household investment funds. Jenkin and Thomas (2002) state that FDI is required to add to monetary development by giving outside capital as well as by jamming in extra residential speculation. By advancing both forward and in reverse linkages with the local economy, extra business is by implication made and encourages monetary action animated. Given the Nigerian economy asset base, the nation's outside speculation approach should move towards pulling in and empowering more inflow of remote capital. The requirement for remote direct speculation (FDI) is conceived out of the immature idea of the nation's economy that basically thwarted the pace of her monetary improvement. By and large, approach procedures of the Nigerian government towards remote speculations are molded by two foremost destinations of the longing for monetary freedom and the interest for financial advancement. An examination of outside stream into the nation so far has uncovered that lone a predetermined number of multinationals or their backups have made Remote Direct Interest in the nation. Added to this issue of inadequate inflow of FDI is the powerlessness to hold the Remote Direct Speculation which has just come into the nation.

Furthermore, Government ought to put more in information since people and firms don't really have private motivating forces to do as such. As prior expressed, information can create expanding returns and drive monetary development. Government ought to along these lines, put resources into human capital, and advancement of training and abilities. It ought to likewise bolster private division innovative work and empower internal venture, which will carry new learning with it.

Theory of Internalization

Internationalization hypothesis was created by Buckley and Casson (1976) and Hennart (1982). This was because of market blemishes and firms seek to make utilization of their monopolistic leeway themselves. They recommended that organizations can beat the market defects by disguising their own particular markets. That implies, disguise includes a vertical-coordination through bringing new operations and exercises under the administration of the firm and prior these exercises were completed by the middle of the road firms.

The hypothesis was likewise created by Coase (1937) in a national setting and Hymer (1976) in a universal setting. Hymer recognized two noteworthy determinants of FDI, one is expulsion of rivalry and the other is favorable circumstances which a few firms have in a specific action (Denisia, 2010). The root of this hypothesis was by Coase (1937) in a national setting and Hymer (1976) in a global setting. Hymer (1976) set up two noteworthy determinants of FDI. The first were the favorable circumstances, which a few firms have in a specific movement while the second was the evacuation of rivalry. Buckley and Casson (1976) express that value-

based organizations arrange their inside exercises to profit by particular points of interest, which are to be misused. The Internalization hypothesis lies on why organizations don't want to sign contract with a subcontractor in a remote nation as opposed to taking part in Foreign Direct Investment themselves. The hypothesis of disguise clarifies the inspirations of the value-based organizations for making outside direct speculation by exploiting different government monetary strategies and different arrangements.

Mercantilist Models Trade Theory

As indicated by Opusunju, Udoh and Jiya (2016) mercantilist gave the prior thought on worldwide exchange. To them, as indicated by the hypothesis, the most vital path for a country to be turned out to be rich and intense is to trade more than its import. A portion of the mercantilism is Jean Baptiste Colbert and Thomas Hobbes. It was seen at that point, that, the most imperative thing was in which a nation could be rich was by getting valuable metals, for example, gold. This was accomplished by guaranteeing that the volume of fares was superior to the volume of imports. Exchange must be controlled, directed and limited. The nation was relied upon to accomplish good adjust of installment. Levies, amounts and other business arrangements were proposed by the mercantilism to limit imports so as to secure a country's exchange position. Mercantilism did not support unhindered commerce. Mercantilism confidence in an expression of contention in which the condition of nature was a condition of war and the requirement for direction to keep up arrange in human undertakings and financial issues were underestimating. To the mercantilist, the world riches was settled. A country's pick up from exchange was to the detriment of its exchanging accomplices that are, not all national could at the same time banquet from exchange.

Absolute Advantage Trade Theory

Adam Smith propounded the theory of total cost advantage in his acclaimed book. "Wealth of Nation" in 1776. The hypothesis rises because of the feedback required against mercantilism. He pushed facilitated commerce as the best arrangement for the countries of the world. Smith contended that with unhindered commerce every country could spend significant time in the generation of those wares in which it could deliver more effectiveness than alternate countries, and import those items in which it could create less proficiently (Opusunju, Udoh & Jiya, 2016). This worldwide specialization of elements underway would bring about increment in world yield, which would be shared by the exchanging countries. Along these lines a country require not pick up to the detriment of different countries, all countries could pick up at the same time. As such, as per the hypothesis, a country ought to have some expertise in the creation of fare items in which it has bring down cost or total cost points of interest over others. Then again, a similar nation should import a product in which it has higher cost or outright cost weakness (Opusunju, Udoh & Jiya, 2016).

Research Methodology

This study employed ex post facto design. The reason is because the study used time series data and employed the used of secondary source of information that are documented. The study relied on reports from Central Bank of Nigeria for secondary data and the reason for obtaining data from Central Bank of Nigeria bulletin is that data obtained from Central Bank of Nigeria bulletin is authentic and unique. The period of study is 36 years from 1981 to 2016.

The population comprises of all manufacturing companies in Nigeria. The sample size is the quoted manufacturing companies in the Nigerian stock exchange, which are 176. The data used are on annual aggregate manufacturing output proxy as industry production. Descriptive analysis in form of mean, correlation analysis and standard deviation are used to analyze the data. Unit root test was used to test whether the data are stationary or non-stationary in order to determine the order of integration using Augmented Dickey- Fuller (ADF) test. The model for the ADF unit root framework is as follows:

$$\Delta Y_t = \beta_1 + \beta_2 + \delta Y_{t-1} + \alpha_i \sum_{i=1}^m \Delta Y_{t-i} + \varepsilon_t$$

Where:

Δ = is the differential factor

ε_t = is pure white noise error term

The null hypothesis is that a variable is not stationary (i.e has unit root problem) against the alternative hypothesis that a variable is stationary. The null hypothesis of non-stationary is rejected if the ADF test statistic in absolute term is more than the critical test value at 5% level of significance. Where any of the variables modeled is found to have no unit root problems, co-integration test is carried out. The Johansen and Juselius co-integration technique is employed to determine the long run equilibrium relationship between the variables in the model. If the data are found to be co-integrated, the research proceeds to carry out Granger test and is used to determine the strength and the direction of causality between variables. The reason is that some correlations may be spurious and not useful, as there might be a third variable that cannot be accounted for, hence the essence of performing the causality test. The study also used Vector Error Correction Model (VECM) 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.

The Vector Error Correction model has co integration relations built into the specification so that it restricts the long-run behavior of the endogenous variables to converge to their co integrating relationships while allowing for short-run adjustment dynamics. The cointegration term is known as the error correction term since the deviation from long-run equilibrium is corrected gradually through a series of partial short-run adjustments.

The Vector Error Correction Model specifications for the hypotheses are presented below:

Model Presentation: FDIMS and INPROD

$$\Delta \ln AFDIMS = \alpha_0 + \alpha_1 \Delta \ln AFDIMS_{t-1} + \alpha_2 \ln INPROD_{t-i} + Ect - 1 + \varepsilon_{t1} \quad (1)$$

$$\Delta \ln INPROD = \beta_0 + \beta_1 \Delta \ln INPROD_{t-1} + \beta_2 \ln FDIMS_{t-i} + Ect - 1 + \varepsilon_{t2} \quad (2)$$

Where Ln is Natural Logarithms, FDIMSt is the aggregate foreign direct investment in manufacturing sector for the sample period, INPROD₋₁ is industry production, α_0 and β_0 are the Constants, α_1 and β_1 are the coefficient of regressions, *Ect* is the error correction term, ε_{t1} and ε_{t2} are error term, and t is time in all the models 1-3 presented above. The error term, ε_t is

Result and Discussion

The data collected were analyzed using various tools of statistical analysis ranging from descriptive statistics, where the mean, median, maximum minimum and standard deviations of the data were obtained. The study also conducted a correlation analysis to examine the relationship among the variables. Similarly, unit root test, co-integration and Granger Causality tests were equally carried out and the results were interpreted accordingly.

Table 1: Descriptive Statistics

	DFDIMS	DINPROD
Mean	8598.293	253610.0
Median	1053.900	93618.19
Maximum	552645.3	1644501.
Minimum	-520287.7	-70536.87
Std. Dev.	179922.7	405474.8
Skewness	0.665404	2.260008
Kurtosis	7.078146	7.307025
Jarque-Bera	26.83672	56.84730
Probability	0.000001	0.000000
Sum	300940.3	8876350.
Sum Sq. Dev.	1.10E+12	5.59E+12
Observations	35	35

The above table indicates that foreign direct investment has greater mean value than industry production in Nigeria. This implies that rate of inflow of FDI in Nigeria does not produce adequate industry production in Nigeria. The median which is the middle value of a value is also greater in foreign direct investment than industry production in Nigeria. The foreign direct investment has a highest maximum value while industry production has lowest maximum value. However, the data were significant at 0.00 at both variables and this implies that the variables used in this study are very unique. The skewness statistics suggests that both observations are positively skewed, and the kurtosis statistics for both variables suggests that they are leptokurtic distributions- having flatter tails than the normal distribution curves. Similarly, the Jarque-Bera statistics of both variables suggests that the variables are normally distributed as the probabilities of the Jarque- Bera statistics are less than 0.05.

Table 2: Correlation Matrix

	FDIMS	INPROD
FDIMS	1	0.774076
INPROD	0.774076	1

Source: Researcher's Computation using Eview8.0, 2017

Table 2, indicates that there is positive correlation between the variables (FDI & INPROD) which implies that there is a positive relationship between foreign direct investment and industry production in Nigeria. The correlation that exists between the two variables is a very

strong positive correlation (0.77) and this implies that the variables are positively related and that foreign direct investment influence industry production and industry production also influence foreign direction investment in Nigeria.

Table 3: Unit Root Test

ADF Test Statistic				Critical Value At 5% Level of Significance			
VARIABLE	Level	First level Difference	Second Difference	Level	First Difference	Second Difference	Order of Integration
DFDIMS	3.0052 1.000*	-3.9472 0.022*	-4.1879 0.014*	-3.5950 1.000*	-3.5742 0.022*	-3.5950 0.014*	I(1)
DINPROD	2.6538 1.000*	1.9900 1.000*	-10.4563 0.000*	-3.5683 1.000*	-3.5683 1.000*	-3.5683 1.000*	I(2)

* indicates the probabilities.

Source: Researcher's Computation using E-view 8.0, 2017.

Table 3 above shows the results of the Augmented Dickey-Fuller Unit root test. The results indicate that data set collected were stationary at the first difference and second difference respectively for FDIMS and INPROD. The variables are not stationary at level at 5% level of significance. The integrated variables were at difference order level which implies that foreign direct investment was stationary at first difference at 5% level of significance and industry production also was stationary at second difference.

Table 4: Co integration analysis

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.361694	24.55069	15.49471	0.0017
At most 1 *	0.239016	9.286841	3.841466	0.0023

Trace test indicates 2 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigen value)

Hypothesized No. of CE(s)	Eigen value	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.361694	15.26385	14.26460	0.0346
At most 1 *	0.239016	9.286841	3.841466	0.0023

Max-eigenvalue test indicates 2 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

Source: Compiled from Eview 8.0, 2017

The above table4 shows that the variables were co-integrated and therefore, have a long run relationship. Hence, there is a strong indication foreign direct investment serves as the long run force in determining the output of manufacturing sector in terms of industry production in Nigeria.

Table 5: Causality test

Null Hypothesis:	Obs	F-Statistic	Prob.
INPROD does not Granger Cause FDIMS	34	3.80068	0.0342
FDIMS does not Granger Cause INPROD		6.84903	0.0037

Source: Compiled by the researcher using E-Views 8.0, 2017.

Table 5 shows the result of the pairwise Granger Causality test. The results of the test implies that the hypothesis which stated that DINPROD does not Granger cause DFDIMS is rejected. Similarly, the hypothesis that stated that DFDIMS does not granger cause DINPROD is also rejected. It was observed that casualty runs in both directions between DINPROD and DFDIMS. This implies that DINPROD causes DFDIMS and DFDIMS also causes DINPROD. This implies that foreign direct investment will be attracted more if domestic production improves, and foreign direct investment will lead to improvement in domestic production in Nigeria.

Table 6: Vector Error Correction

Error Correction:	D(FDIMS)	D(INPROD)
CointEq1	0.071977 (0.05156) [1.39602]	0.336965 (0.05857) [5.75343]
C	174535.3 (105909.) [1.64797]	743780.2 (120307.) [6.18236]
R-squared	0.526447	0.876742
Adj. R-squared	0.438752	0.853916
Sum sq. resids	5.21E+11	6.72E+11
S.E. equation	138930.8	157817.0
F-statistic	6.003152	38.41055
Log likelihood	-434.2910	-438.4972
Akaike AIC	26.68430	26.93923
Schwarz SC	26.95640	27.21132
Mean dependent	9106.602	268851.9
S.D. dependent	185447.5	412907.8
Determinant resid covariance (dof adj.)		3.48E+20
Determinant resid covariance		2.33E+20
Log likelihood		-867.4578
Akaike information criterion		53.42169
Schwarz criterion		54.05657

Source: Researcher's Computation using Eview 8.0, 2017.

The result of the vector Error Correction (VEC) test reveals that about 0.07 (7%) of short run disequilibrium is corrected by FDIMS annually. Similarly, about 0.33(33%) of short run disequilibrium is corrected by INPROD annually. The R^2 value of FDIMS being 0.52 suggests that 52% of variation in FDIMS is explained while 0.48 is not explained. The R^2 value of INPROD being 0.87 suggests that about 87% of variation in INPROD is explained, while a mere 13% is not explained.

Table 7: VEC Granger Causality/Block Exogeneity Wald Tests

VEC Granger Causality/Block Exogeneity Wald Tests

Date: 11/16/17 Time: 12:37

Sample: 1981 2016

Included observations: 33

Dependent variable: D(FDIMS)

Excluded	Chi-sq	df	Prob.
D(INPROD)	10.41278	2	0.0055
All	10.41278	2	0.0055

Dependent variable: D(INPROD)

Excluded	Chi-sq	df	Prob.
D(FDIMS)	21.07685	2	0.0000
All	21.07685	2	0.0000

Source: Researcher's Computation using Eview8.0, 2017.

The result of the VEC granger causality tests suggests that FDIMS granger causes INPROD in Nigeria over the period of study. Similarly, INPROD granger causes FDIMS in Nigeria between 1981–2016. This result is in line with the result of the Granger Causality test result in table 5 above, which shows that causality runs in both directions between FDIMS and INPROD.

Discussion of Findings

The analyses shows that the variables has unit root at level but became stationary at first and second differencing. The outcome of the Johansen co- integration test using both trace and max-eigen test statistics reveals the presence of long-run relationship among the variables at 0.05 level of significance, which support the rejection of null and acceptance of alternate hypothesis that there is co-integration. Following the results, it is therefore evident that foreign direct investment and manufacturing sector output in terms of industrial production are co integrated. The causality test shows that industry production granger causes foreign direct investment in Nigeria and this implies that more industry production attracted foreign direct investment in Nigeria. This is not consistent with findings of Osisanwo (2013) where

FDI and Manufacturing sector growth has inverse relationship and FDI cannot explain the variations in the changes of the manufacturing sector growth. Similarly, Aysha Muhammad and Sara (2011) as well as Opaluwa, Ameh, Alabi and Abdul (2012) agree that FDI does not cause the growth of the manufacturing sector in Nigeria based on their findings.

The importance of industry production in Nigeria cannot be over emphasized since the capital flow is imperative in enhancing development and growth to improve the living standard of the people by supporting, stimulating research and development which is important for indigenous manufacturing sector to grow. This findings is tangent with the results of Okoli and Agu, (2015) and Patience (2011). The higher the output of manufacturing sector, the greater the surge in FDI in Nigeria. The study found that causality of the variables run from foreign direct investment to industry production in Nigeria. The findings revealed that foreign direct investment in Nigeria is an engine force that attract or increase industry production and that industry production is influenced by foreign direct investment. The results of this study is in line with findings of Osisanwo (2013) and Patience (2011).

The VEC/Granger Causality test shows that there is bidirectional relationship between FDI and industrial production in Nigeria. The variables reinforce themselves and they are both significant at 5% level. This implies that the growth of manufacturing sector attract the inflow of FDI into the sector and FDI inflow into manufacturing sector is identified as a major catalyst for industrialization by providing needed capital, technology and expertise in food and beverages, motor vehicles and transport equipment, leather and foot wear and tobacco. The study supports the New growth theory of foreign direct investment.

Conclusion and Recommendation

The study concluded that there is a long run relationship between foreign direct investment and output of manufacturing sector in Nigeria in terms of industry production. The causality test shows that industry production granger causes foreign direct investment in Nigeria and the study also found that causality of the variables run from foreign direct investment to industry production in Nigeria. The study recommends that Nigerian government should encourage the inflow of foreign direct investment into manufacturing sector since it facilitates output in terms of industry production. Furthermore, policies and programs that would facilitate infrastructural development, political and economic stability are key in supporting the appeal of these investment locations.

References

- Athukorala, W. P. P. A. (2003). *The impact of foreign direct investment for economic growth: A Case Study in Sri Lanka*, 9th International conference on Sri Lanka Studies. Matara: Sri Lanka.
- Ayanwale, A. B. (2007). *FDI and economic growth: Evidence from Nigeria*. AERC Research Paper 165, African Economic Research Consortium, Nairobi.
- Aysha, P. O., Muhammad, I. K. & Sara, I. J. (2011). Impact of foreign direct investment on manufacturing output growth. *International Journal of Management and humanity*, 2 (4) 45-56
- Bartels, F. (2000). *International business: A competitiveness approach*. Singapore City: Prentice Hall/citation from Bangladesh paper.
- Buckley, P. & Casson, M. (1976). *The future of multinational enterprise*. London: The Macmillan Press.
- Carkovic, M. & Levine, R. (2002). Does foreign direct investment accelerate economic growth? In: Moran, T. H., E.M. Graham and M. Blomstr (om, (Eds.), *Does foreign direct investment promote development?* Institute of International Economics Press, Washington, DC.
- Chen, E.K.Y. (2000). *Multinational corporations: Technology and employment*. London:
- Glass, A. J. & Saggi, K. (2009). Multinational firms and technology transfer. *Scandinavian Journal of Economics*, 104, 4, 495-513.
- Hannon, P., & Reddy, S. (2012). *China edges out U.S. as top foreign-investment draw amid world decline*. Retrieved November 28, 2016, from <http://online.wsj.com/news/articles/SB10001424052970203406404578074683825139320>
- Jenkins, C. & Thomas, L. (2002). *Foreign direct investment in Southern Africa: Determinants, characteristics and implications for economic growth and poverty*.
- Alleviation. Globalization and Poverty Project. University of Oxford.
- McAleese, D. (2004). *Economics for business: competition, macro-stability and globalization*. 3rd ed. Edinburgh Gate: Pearson Education Limited
- Moosa, I. A. (2002). *Foreign direct investment: Theory, Evidence and practice*. London: Palgrave.
- Njeru B. N. (2013). *The impact of foreign direct investment on economic growth in Kenya*. Nairobi: Kenya.

- Nwankwo, A., (2006). The determinants of foreign direct investment inflows (FDI) in Nigeria. *Proceedings of the 6th Global Conference on Business and Economics*, October 15-17, 2006, Gutman Conference Centre, Cambridge
- Obadan, M. I. (2004). *Foreign capital flows and external debt: Perspectives on Nigeria and the LDCs Group*. Lagos: Broadway Press Limited
- OECD (2008). *Foreign direct investment and development: Where do we stand?* Paris. United Kingdom
- Okoli, T. T. & Agu, O. C. (2015). Foreign direct investment flow and manufacturing sector performance in Nigeria. *International Journal of Economics, Commerce and Management*, 3 (7) 413-428
- Opaluwa, D., Ameh. A. A., Alabi, J.O. & Abdul, M. (2012). The effect of foreign direct investment on the Nigerian manufacturing sector. *International Business and Management*, 4 (2) 140-148
- Opusunju, M. I., Udoh, F. S. & Jiya, N. S. (2015). Impact of foreign direct investment on economic growth in Nigeria. *International Journal of Advanced Studies in Business Strategies and Management*, 1 (6) 33-44
- Osisanwo. G. (2013). The macroeconomic effect of financial development on economic growth in Nigeria: A Long-Run Analysis, 1970-2011. *Journal of African Macroeconomic Review*, 4 (1) 227-245.
- Patience, G. (2011). Impact of foreign direct investment on manufacturing output (Aruwa, 2015) growth of West Africa. *Africa Journal of Management and business*, 6 (21) 67-77
- Ugochukwu, S. C., Okoye, P. U. & Ebekoziem, A. (2015). The challenges facing foreign direct investment in the Nigerian Construction Sector. *International Journal of Engineering, Business and Enterprise Application*, 13 (1) 6-12
- United Nations Conference on Trade and Development [UNCTAD] (1999) UNCTAD (2008). *Foreign direct investment inflows to Africa hit historic high but flows are geographically and sector ally concentrated*. Available on line at <http://www.UNCTAD/PRESS/PR/2017/022/02/10/2017>
- Uzoka C. I. (2012). *The impact of foreign direct investment on Nigeria economic growth (1980 – 2010)*. Caritas University, Emene: Enugu
- World Bank (2004). *Global development finance 2001*. Washington, D. C.