# FOREIGN DIRECT INVESTMENT INFLOW AND MANUFACTURING CAPACITY IN NIGERIA: 1984-2017

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## Abstract
The study examined the role of foreign direct investment on manufacturing capacity in Nigeria. Secondary data were sourced from Central Bank of Nigeria Statistical bulletin of various years for foreign direct investment (FDI), exchange rate (EXR), inflation rate (INFR) and manufacturing capacity (MC) for the period of 1984 to 2017 and were subjected to Augmented Dickey Fuller Unit Root test, Johansen Co-integration and Multiple regression analysis (OLS) Model. The study discovered that FDI and EXR were able to impact manufacturing capacity significantly while INFR were unable to play significant role on manufacturing capacity in Nigeria. There is also the presence of long run relationship between the variables of study within the period. Thus, the study concludes that foreign direct investment plays significant role on the manufacturing capacity in Nigeria. Hence, the study recommends improvement of the investment climate for existing domestic and foreign investors through infrastructure development, provision of services and changes in the regulatory framework by relaxing laws on profit repatriation, improve security situation, address issues that threaten the unity of the country, consider investment agenda of the economy above political interest or affiliation.

**Keyword:** Foreign Direct Investment, Inflation Rate, Exchange Rate, Manufacturing Capacity

## Introduction
Nigeria is West Africa's most populous country with 182million population size and one of the most developed in the region in Gross Domestic Product (GDP) with $486.8Billion as at 2015 (World Bank Statistical Atlas Data 2017). It is one of the economies with great demand for goods and services, and has attracted some foreign direct investment (FDI) over the years in Africa. In spite of this advantage Nigeria's economy is still dependent on its oil sector which provides almost 97.5 per cent of foreign exchange earnings and approximately 80 percent of budgetary revenues (Anyaehie&Areji, 2015). Regardless of the advantage of population, good environment and land mass; the Nigerian economy still encounter some economic problems in power supply, infrastructural facilities and socio-economic organization problem (Ogbonna, 2012).
How these economic problems are tackled depend largely on the economic system in operation. There are different types of economic systems in the world. Nigeria as an economy operates a mixed economic system, which consist of public ownership and private ownership of the means of production. Practically, a mixed economy is heavily slanted towards one extreme either it is dominated by the public sector or it is characterized by the dominance of private ownership (Ramsaran, 2012). Before 1986, the Nigerian economy was mainly public sector dominated economy. The Nigerian economic sector changed from public sector economy to a mixed economy and highly slanted to private ownership of the economic sector due to change of policy. Those

successes encouraged the deregulation of the economy in Nigeria. Forces of demand and supply began to regulate prices in all the market of the economy e.g Labour market, Money market, Foreign Exchange Market, Commodity Market and the Capital Market.

According to World Bank statistical atlas data, the Nigerian economy is ranked 21st in the world in terms of GDP as at 2017, although it's underperforming manufacturing sector is the second largest on the continent. The Nigerian economy produces a large proportion of goods and services for the West African region. Moghalu (2009) concluded from his findings that the Nigerian economy has a weak manufacturing sector. He attributed this fundamental weakness to inadequate power supply, high unemployment, food insecurity, weak infrastructure, export base and fallen standard in education and health system. However, the manufacturing sector is further affected by other factors as regulatory issues, multiplicity of taxes, infrastructural deficiencies and trade facilitation issues. For instance, the efforts to encourage local tomato paste production have faced unprecedented challenges from storage deficiencies to transport mishaps which affected the required success. Thus, Nigeria imports at least 400,000 tons of tomato paste annually. The cement production segment of the economy recorded success but high level of low competition reduces the overall efficiency of the sector development. Another manufacturing sector setback was recorded in the fruit production segment of the economy, where the Raw Materials and Research Development Council (RMRDC) where the local firms currently meet less than 25 per cent of the 550 million litres local fruit juice demand (Raji, 2018).

The issues of insufficient funds have triggered the death of key section of the manufacturing sector in Nigeria. The need for funds to boost improved expansion plans are confronted with limited and poor financial availability as there is no ready funds for manufacturing sector in Nigeria. This thus shows the need for increased foreign private investment as an important channel for increasing aggregate investment in the manufacturing sector. FDI inflow is highly supported by the activities of multinational corporations, thus playing vital roles in linking national economy and defining the nature of the emerging global economy. Their provision of support and resources (tangible and intangible) deployed across national boundaries and manufacturing sector precisely help to pursue profit and bolster their competitive position by augmenting domestic production expansion, savings and provide foreign exchange required for massive investment in infrastructures. Foreign Direct Investment into Nigeria appreciated overtime for most of the period of 1984 to 2018. However, the FDI inflow into Nigeria fell drastically and continuously in the last quarter of the study period from N1,360.3 Billion in 2011 to N602.1 Billion in 2015 before the improvement in N1,124.1 Billion in 2016 and further falls to N1,069.4 Billion.

The inflow of Foreign Direct Investment has been hampered by economic conditions like junk credit ratings, poor diversification (overdependence on oil), inadequate roads, inadequate highways and railroads for basic functions of commerce (trade), poor Infrastructures and access to raw materials, power supply, poor labour skills and high wage cost and inconsistent government policies have contributed to the nation's poor reputation as an FDI destination. Most importantly is the level of insecurity, ethnicity, disunity and threats of secession of regions of the country also hampered the chance of

increased FDI in Nigeria (Ogbonna, 2012). This also reflected the contradicting findings in the study of Onyekwena (2012) and, Samal and Raju (2016) on FDI and Nigerian economic growth in manufacturing firms which discovered that FDI generates spillovers in Nigerian manufacturing firms and productivity, but in Adamu and Bende (2013), FDI did not accelerate manufacturing sector growth in domestic firms.

However, regardless of the continuous inflow of foreign direct investment into the Nigerian economy, the different economic setbacks encountered by manufacturing sector; the study intends to ascertain the role of Foreign Direct Investment on manufacturing sector of Nigeria.

**Conceptual, Theoretical and Empirical Review**

For a developing country like Nigeria with enormous raw materials, population increase, labour force and economic opportunities; the inflow of foreign capital is significant in not only raising the productivity of a given amount of labour, but also allowing a large labour force to be employed (Sjoholm, 1999).

The Foreign Direct Investment as described by OECD (2002) is a source of economic development, modernization and employment generation, whereby the overall benefits (dependent on the policies of the host government) of FDI triggers technology spillovers, assists human capital formation, contributes to international trade integration and particularly exports, helps create a more competitive business environment, enhances enterprise development, increases total factor productivity and, more generally, improves the efficiency of resource use.

All these resultant attributes of FDI are however totally missing on the efficient productivity of the Nigerian manufacturing sector. Hence, the Nigerian manufacturing section of the economy therefore needs to be integrated into the world economy in order to exploit the attendant opportunities in the face of the challenges of globalization. There are numerous sections of the manufacturing sectors of Nigeria that needs to be totally overhauled to take advantage of the highly untapped opportunities in the Nigerian economy. However, the small-scale enterprises within the Nigerian economy are highly overpowered by the presence of foreign or Multinational Corporation.

The government's industrialization focus is on small and medium scale enterprises and it is one of the five key execution priorities of the Buhari's four-year Economic Recovery and Growth Plan (ERGP). Other stated priorities are the stabilization of the macroeconomic environment, energy sufficiency, improvement of transportation infrastructure, and the achievement of food security. The Nigerian Bureau of Statistics (2017) holds that the Nigerian manufacturing sector is dominated by the production of food, beverages and tobacco, with sugar and bread products generating the greatest values of output (Raji, 2018). However, their successes are constrained as all effort of Central Bank of Nigeria (CBN) to facilitate the issuance of single-digit interest rate loans to firms operating in the agriculture and manufacturing sectors could not be achieved as most loans obtained were diverted to importation activities within the economy.

The manufacturing sector in Nigeria has always been at the receiving end of the dependency on Oil sector which have hampered its potential growth and efficiencies. The industry has suffered from neglect since the country's economy had heavily depended on the petroleum sector since the 1970s. The economic recession occasioned by the collapse of the world oil market prices from the early 1980s, in 2012-2013 till late 2016, high inflation rate and the attendant sharp fall in foreign exchange earnings adversely affected economic growth and development in Nigeria due to low or poor manufacturing sector. More recently the increased exchange rate of the Nigerian naira to the dollar in 2016 till 2019 also emanated from the reduced oil market prices and overall import nature of the Nigerian economy. The government attempt to diversify the economy over time through the deregulation of the economy and to reinvigorate the manufacturing sector so as to increase its contribution to Nigeria's prosperity has come short of agenda. The biggest problem facing manufacturers over the past decade has been inadequate infrastructure in general and lack of power supply in particular. Regardless of the setbacks Lagos, Ogun state and their surroundings are home to about 60% of Nigeria's industrial base. Other key industrial centers are Kano, Ibadan and Kaduna (Egbo, 2010). Apart from Lagos, Kano and Kaduna, the next most concentrated small-scale enterprises and industrialized area of Nigeria is Anambra (Nnewi and Onitsha) and Abia (Aba) with growing but limited industrial thrives.

Nigeria's most important manufacturing industries include beverages, cement, cigarettes, food processing, textiles and detergents. Ironically, the Nigerian natural resources have not been put to its full usage. This facilitated the participation of foreign investors which help to facilitate the usage of the mineral facilities in Nigeria. The major problems associated with the Nigerian economy include excessive dependence on imports for consumption and capital goods, dysfunctional social and economic infrastructure, unprecedented fall in capacity utilization rate in industry and neglect of the agricultural sector, among others. However, to put the country back on the path of recovery and growth will require urgent rebuilding deteriorated infrastructure and making more goods and services available to the citizenry at affordable prices (Anyanwu, 2001). Manufacturing as a path to economic recovery and growth may require increasing production inputs - land, labour, capital and technology and increasing productivity. The manufacturing sector thus, plays a catalytic role in a modern economy and has many dynamic benefits that are crucial for economic transformation. It is also the bedrock of every economy (Simon-Oke & Awoyemi, 2010). In an advanced economy, the manufacturing sector is a leading sector in many respects. It is also an avenue for increasing productivity in relation to import substitution and export expansion, creating foreign exchange earning capacity, raising employment and per capita income, which widen the scope of consumption in dynamic patterns. Furthermore, it promotes the growth of investment at a faster rate than any other sector as well as wider and more efficient linkage among different sectors (Ogwuma, 1995 in Simon-Oke & Awoyemi, 2010).

A rapid look at some concentrations of industrial development in Nigeria may lead to a misleading picture of a high state of industrialization in Nigeria. For a country of the size of potential in Nigeria, manufacturing is essential if the country is to achieve rapid economic and social development. This recognition of the importance of manufacturing

industries in the growth process is linked with the choice of an appropriate strategy of industrial development.

According to Oyeranti (2003), economic theory provides two approaches to studying the link between FDI and economic development variable of the host countries.The first approach is rooted in the standard theory of international trade and dates back to MacDougall (1960). While, the second approach departs from trade theory to the theory of industrial organization and was pioneered by Hymer (1976). The theory of industrial organization begins with an examination of why firms undertake investment abroad to produce the same goods as they produce at home. However, foreign direct investment only thrives when there is imperfection in the markets for goods and factors including technology (Kindleberger, 1966). Firms investing abroad therefore move capital, technological and knowledge diffusion induce market performance and competition in host economy. Other theories like endogenous growth model hold the notion that long-term investment is a great determinant of economy growth a country. It further explained that physical investment is not a measure of economy growth of a country but the intended effectiveness and efficiency in the use of these investments (proposed and enhanced by Harrod Roy F. and Domar Evsey in 1939 and 1946 respectively). The eclectic theory as postulated by Dunning (1973) seeks to offer a general framework for determining patterns of both foreign owned productions undertaken by a country's own enterprises and that of domestic production owned by foreign enterprises. The eclectic theory is launched in three pillars of Ownership, Location and Internalization (O+L+I). Hence, theendogenous growth model theory and eclectic theory are relevant to the study as it identifies the determinants of Multinational Enterprises (MNEs) to invest abroad as portrayed in the OLI variables and the effectiveness and efficiency resulted from FDI motivated investments. For instance, in the case of the location advantage, foreign investors have the advantage of choosing the location where the plants will be built. In most cases these locations are close to the ports and harbours for the ease of transportation. Furthermore, foreign investors have the ownership advantage which includes brand names, benefits of economies of scale and technology as well as the transfusion of effectiveness and efficiency in domestic productivity.

**Empirical Review**

The role of FDI on manufacturing output is a key segment of the multiplier effect of spillovers of FDI in an economy. In the literature, various researchers have exerted their findings and concluded on the possible effect of FDI in the manufacturing sector of an economy.

For instance, Sönmez and Pamukçu (2010) studied technology spillovers from foreign investment to domestic firms in emerging economies and are considered to be the most important channel through which Foreign Direct Investment (FDI) influence the host economy. They conclude that FDI technology spillover facilitates manufacturing growth in Turkey in their study of Foreign Direct Investment and Technological Spillover in the Turkish manufacturing sector. The study of Graham and Wada (2001) as indicated in Rutaihwa and Simwela (2012) using econometric model to examine the effects of FDI on growth and export performance of China discovered that FDI contributed positively to export growth. In particular, it was found that total factor productivity growth did

accelerate in the coastal regional of China where the bulk of FDI were found to have taken place relative to other regions of China. However, the findings of Rutaihwa and Simwela (2012) on the role of FDI in the Mining Sector to Tanzania's Export Capacity during 1989-2009 discovered that the total exports performance to the rest of the world is negative and insignificant, which implies that the contribution of FDI in mining have been weakly and exerting negative pressure on Tanzania's export performance over the period.

Raju and Samal (2016) investigated the role of Foreign Direct Investment (FDI) on Manufacturing Industry in India with particularly interest about the role and importance of FDI in manufacturing sector. Using OLS regression analysis, they discovered that FDI facilitates the economic development and as well as increase the growth of the domestic Product (GDP) of the country and found its positive impact in every sector of industrial life and Human life (i.e. maintenance of sustainable & moderate life style).

Girma and Gorg (2005) examined the effect of Foreign Direct Investment, spillovers and absorptive capacity on manufacturing in UK. In their study, they allowed for different effects of FDI on establishments located at different quantiles of the productivity distribution by using conditional quantile regression and discovered that absorptive capacity matters for productivity spillover benefits in manufacturing companies in UK.
In the study of Fu (2008) on the examination of the relationship between foreign direct investment, absorptive capacity and regional innovation capabilities in China and discovered that the globalization of R&D may provide an opportunity for developing countries to catch up on the technology frontier.

Aitken and Harrison (1999) in their study of Domestic Firms benefit from Foreign Direct Investment in Venezuela using OLS regression method conclude that increased competition for input factors and market share drives firms up their average cost curves, which then results in a lower productivity of domestic firms.

Sen (2008) examined Trade, FDI and Industrial Transformation in India by examining the granger causality effects of trade and FDI inflows on India's industrial transformation, particularly since the onset of economic reforms in the 1980s and early 1990s to 2000s and discovered that trade reforms in India have had a strong positive impact on total factor productivity and the impact of trade in the net creation of jobs in the manufacturing sector has been relatively small. He further stated that while trade and FDI have had major positive effects on efficiency in Indian manufacturing, they may not have had similar positive effects with respect to equity outcomes, especially in contributing to the growth of a labour-intensive export-oriented segment of the manufacturing sector.

Another study on India is the study of Mohan (2014), who empirically examined FDI and Indian Economic growth factors. The study revealed his linear regression study that trade, GDP, Reserves, Exchange rate are the main determinant of FDI inflows to the country. He further observed that FDI is a significant factor influencing the economic growth in India and contributes to the GDP and foreign exchange reserves of the

country. Pais (2014) also using regression analysis supported the standing of Mohan in his study of the impact of Foreign Direct Investment on Indian Economy by concluding that FDI has had a positive impact on Indian Economy via supplementation of domestic capital, technology and skills of existing companies.

Jaguli, (2011) examined the impact of various channels of technology spillovers on local innovative capacity at national and firm level. The study using OLS reveals that export-related spillovers are positively associated with Malaysia's innovative capacity, whereas import related spillovers play a minor role in local innovation. He further discovered that there is strong evidence of the importance of foreign innovation activities to local innovative capacity at national level while also showing that knowledge spillovers measured by FDI inflows have no significant impact on local innovative capacity.

Jayawickrama and Thangavelu (2007) examined the influence of FDI on manufacturing growth of Singapore in a panel data sample of 14 manufacturing industries over 30 years stretching from 1975 to 2004. They discovered a positive contemporaneous effect of FDI on the output growth of Singapore manufacturing industries.

Yasar and Paul (2007) examined the existence of intra-industry spillovers in 437 firms across five countries: Poland, Moldova, Tajikistan, Uzbekistan, and Kyrgyz Republic. Their analysis found foreign presence in an industry results in an increase in labour productivity of domestic firms. Indirect contrast was discovered in Waldkirch and Ofusu (2010) investigation of FDI presence, Spillovers, and Productivity in Ghana showed significant negative relationship between FDI presence and the level of value added per employee in their study on 200 firms in Ghana, using Generalised Method of Moments (GMM) technique of estimation. However, the results using the growth rate of the model yielded positive spillovers.

Haskel, Pereira and Slaughter (2007) examined whether inward Foreign Direct Investment Boost the Productivity of Domestic Firms in UK and their regression result discovered that no evidence of spillovers was found on the domestic firms in the UK. In the same vein Mullen and Williams (2007) examined Foreign Direct Investment and Regional Productivity Spillovers in US Manufacturing firms but no evidence of spillovers also discovered. Showing FDI in developed economy has no spillover effect on the already robust and efficient manufacturing firms in the UK and US.

In Africa, Onyekwena (2012) empirically investigated the impact of Foreign Direct Investment on Nigerian manufacturing firms and banks, but his OLS findings discovered that FDI generates spillovers in Nigerian manufacturing firms. Bwalya (2006) also examined whether foreign direct investment and technology spillovers in intra-industry or inter-industry spillovers occur in 145 manufacturing firms in Zambia, using panel data analysis the results of the analysis show evidence of both positive intra-industry and inter-industry spillovers. Similar positive results were obtained in the study of Managi and Bwalya (2010) using Panel data analysis on foreign direct investment and technology spillovers in sub-Saharan Africa, looking at basically manufacturing firms in Kenya and Tazania.

Ogbonna,Okeke and Okafor (2017) examined foreign direct investment and economic growth with major concentration on infrastructural expenditure motivations. Their study employed both OLS and granger causality to discover that Foreign Direct Investment as motivated by Infrastructural Expenditure impacted economic growth significantly both in the long run and the short run.

Hence, there is scarce empirical study on the role of foreign direct investment on the manufacturing capacity in the literature and this form the basis for this study.

**Research Hypothesis**

$Ho_1$: Foreign Direct Investments does not significantly affect Manufacturing Capacity/Utilization in Nigeria.

**Methodology**

This study used the *ex-post facto* research method, which is a very common and ideal method in conducting research in business and social sciences. It is mostly used where variables are drawn from already concluded events like Central Bank of Nigeria statistical bulletin of various years and there is no possibility of data manipulation. The analytical tool used is E-views 10.0. This research work adapted the model of Adigwe, Ezeagba and Francis (2015) with slight modifications (for example; removal of non-variable of interests). The researcher expressed economic growth indicators as a function of FDI.

Their models are stated thus;

$GDP = ß_0 + ß_1FDI + ß_3 EXR + U_t$ (Adigwe, Ezeagba & Francis, 2015)

To examine the role of FDI on Manufacturing capacity/utilization; the model of the study is stated using the multivariate model estimation as shown below:

$MU = f(FDI, EXR, INFR) \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 1$

Where:

FDI- Foreign Direct Investment, EXR- Exchange Rate, INFR- Inflation Rate and MU-Manufacturing Capacity/Utilization. The independent variables known as FDI is the gross of all foreign direct investment types as available data did not make provision for the individual components, EXR and INFR to reflect currency and prices fluctuations within the economy. The economic development indicator (Manufacturing capacity/utilization (MFC))is the dependent variable.

Thus;

$MU_t = \alpha_0 + \alpha_1FDI_t + \alpha_1EXR_t + \alpha_1INFR_t + U_t \ldots\ldots\ldots 2$

**Apriori Expectation**

The apriori expectations adopted the findings of Adam and Tweneboah (2008), Adigwe, Ezeagba and Francis (2015), Mohd and Izhar (2014), Othman, Jafari and Sarmidi, (2014) and Ugwuegbe, Modebe and Onyeanu (2014); which all stated a positive significant relationship between foreign direct investment and economic development/growth variables/parameter indicators.

**Presentation of Results**

**Test of Stationarity**

The test for stationarity is anticipated to show that the variables of the series model must be stationery at a given level and p-value must be significant at that level. Stationarity is attained where the test statistics is most negative and less than the critical value of the chosen level of significance of 5%.

Table 1: Unit Root Tests for Data

| Variables | ADF Test Statistics | Critical Values @ 5% | P-value | Order of Integration |
|---|---|---|---|---|
| MU | -2.482771 | -1.951687 | 0.0148** | I(1) |
| FDI | -7.355558 | -1.951687 | 0.0000*** | I(1) |
| EXR | -3.215536 | -2.957110 | 0.0283** | I(1) |
| INFR | -5.538309 | -1.951687 | 0.0000*** | I(1) |

*Source: Researchers' compilation from E-views 10.0. Values marked with a *** represent stationary variables at 1% significance level, and ** represent stationary at 5% and * represent stationary variables at 10%.*

Table 1 shows the Augmented Dickey-Fuller results. The test has a null hypothesis of unit root. The calculated value of ADF was compared with the critical value. If the calculated value is greater than the critical, we then reject the null hypothesis that the series have unit root, thus confirming that the series are stationary. All the differenced variables were stationary at 1%, 5% and 10% significant levels except MU and EXR where were stationary at 1% and 5% significance levels all at first difference; hence the null hypothesis of unit root is rejected. Thus, the study will further be subjected to the long run relationship using johansen co-integration model analysis.

**Tests for cointegration**

Since all the variables are integrated of order 1, it is very important to determine whether there exists a long-run equilibrium relationship amongst them. For the purposes of this study cointegration examines the long run relationship between the Manufacturing capacity and the regressors. Since all variables are non-stationary in level, the next procedure is to test for the existence of long run relationships among the variables in the model. The cointegration test using Johansen test requires the estimation of a LR equation.

**Table 2. Johansen Co-integration Rank Test (Trace and Max Eigen)**

Series: MU FDI EXR INFR
Lags interval (in first differences): 1 to 1

Unrestricted Cointegration Rank Test (Trace)

| Hypothesized No. of CE(s) | Eigenvalue | Trace Statistic | 0.05 Critical Value | Prob.** |
|---|---|---|---|---|
| None * | 0.706605 | 90.32861 | 54.07904 | 0.0000 |
| At most 1 * | 0.660987 | 51.08912 | 35.19275 | 0.0005 |
| At most 2 | 0.292211 | 16.47420 | 20.26184 | 0.1534 |
| At most 3 | 0.155668 | 5.414686 | 9.164546 | 0.2410 |

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 Eigenvalue)

| Hypothesizd No. of CE(s) | Eigenvalue | Max-Eigen Statistic | 0.05 Critical Value | Prob.** |
|---|---|---|---|---|
| None * | 0.706605 | 39.23949 | 28.58808 | 0.0015 |
| At most 1 * | 0.660987 | 34.61492 | 22.29962 | 0.0006 |
| At most 2 | 0.292211 | 11.05951 | 15.89210 | 0.2475 |
| At most 3 | 0.155668 | 5.414686 | 9.164546 | 0.2410 |

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: Researchers' compilation from E-views 10.0.*

Table 2 shows the results of the trace and max-eigen test which reflect that at least two co-integrating equation exists at 5% significance level. The null hypothesis of no cointegration vectors is rejected since the trace (test) statistic of 90.32861, 51.08912 are greater than the 5% critical value of approximately 54.07904, 34.19275 respectively. Using a similar explanation, the null hypothesis that there is at most 2 cointegration vector cannot be rejected since the test statistic of approximately 16.47420, 5.414685 is less than the 5% critical value of about 20.26184, 9.164546. For that reason, the trace statistics specified 2 co-integrating relationship at 5% significance level. The maximum Eigen value test in the same table 2 put forward that there is only 2 cointegrating relationship in the model. Therefore, it can be concluded that there is two significant long run relationships between the given variables (using the trace test and max-eigen).

**Regression Result (OLS)**

The detection of a cointegration equation in the previous section means that a normal regression analysis can be utilized. This has led to a distinction between the long and short run impacts of variables so as to establish the extent of influence that foreign direct investment, exchange rates and inflation rate on manufacturing capacity.

**Table 3: Results of the Ordinary (Multiple) Least Square Regression Analysis**

| Variable | Coefficient | Std. Error | t-Statistic | Prob. | R-squared | Adjusted R-squared | F-statistic (Prob) | Durbin-Watson stat |
|---|---|---|---|---|---|---|---|---|
| FDI | 0.000599 | 0.000168 | 3.564320 | 0.0012*** | | | | |
| EXR | 0.003262 | 0.000957 | 3.408700 | 0.0019*** | | | 43.78777 | |
| INFR | 0.002934 | 0.002388 | 1.228949 | 0.2286 | 0.814084 | 0.795493 | (0.00000)*** | 0.562126 |
| C | 7.154664 | 0.090258 | 79.26933 | 0.0000*** | | | | |

*Source: Researchers' compilation from E-views 10.0. Values marked with a *** represent stationary variables at 1% significance level, and ** represent stationary at 5% and * represent stationary variables at 10%.*

The relationship between foreign direct investment, exchange rate and inflation rate, and the manufacturing capacity as presented in table 3 is further illustrated using coefficient equation of the MLSR thus;
LOG (MU) = 0.000599004349316*FDI + 0.00326239223603*EXR + 0.00293424116647*INFR + 7.15466380469

Table 3 shows that two of the three variables have strong significant relationship alongside the MU. The results of the table 3 suggest that a unit increase in FDI facilitates an increase in the Nigerian manufacturing utilization/capacity therefore improving economic growth in the long run by approximately 0.0006. This shows that despite the fact that increased FDI was experienced over time the contribution to manufacturing capacity is minimal with exchange rate and inflation rate contributing more with the speed of adjustment in the coefficient at 0.003 and 0.003 respectively. In the long run the results comply to the Keynesian economist theories of multiplier effects of FDI and its services (Eisner, 1989) that suggest that increased foreign investment results in an increase in domestic production, which boosts investor sentiments about the future path of the economy and economic growth at large. However, the presence of long run relationship signifies that FDI and other variables in EXR and INFR play significant role on manufacturing capacity in Nigeria. Continuous increase in the FDI over time has further facilitated improved required increases in the anticipated output of the domestic manufacturing capacity/production in general and economic growth at large. The role of FDI is further stressed by the t-statistics of 3.564320 with P-value of 0.0012, that FDI significantly impacted manufacturing capacity in Nigeria.

In the short run a unit increase in EXR increases manufacturing capacity by approximately 0.0033. Hence, an increase in exchange rate of naira to the dollar (EXR) in the long run continue to boost the inflow of foreign direct investment especially portfolio investments which improves the investment returns and thus increasing economic growth. The significant relationship at 3.408700 for T-statistics and prob. value of 0.0019 at 5% significance level further stressed the fact that investor take advantage of the ever-increasing exchange rate within the economy. However, this increase is a significant threat to economic conditions which further worsen the position imposed by loss of value of domestic currency to the foreign currency within the economy.

A unit increase in INFR increase economic growth in the short run by approximately 0.0029. Foreign investment in the manufacturing sector of the Nigerian economy is however threaten by continuous rise in the price of household items thus affecting the country's production capacities and economic growth at large. The t-statistics though positive at 1.228949 had insignificant impact on the manufacturing capacity in Nigeria with probability value of 0.2286.

The overall impact as expressed by the F-statistics of 43.78777 with p-value of 0.00000 showed that FDI and the other considered variables significantly affected manufacturing capacity in Nigeria. This is further stressed by the R-squared and adjusted R-squared of 0.814084 and 0.795493 respectively showing that variation in the variables considered improved and facilitate changes in manufacturing output by 81% while other variations are influenced by variables not captured in the study. The overall impact is expected not to go below 79.5% as shown in the Adjusted R-squared.
Summarily, FDI and EXR are statistically significant in explaining manufacturing capacity in Nigeria in the short run as seen by absolute t-values of table 3. The other control variables in INFR are positive but not statistically significant in explaining manufacturing capacity in Nigeria.

**Conclusion and Recommendation**

This study examined the role of foreign direct investment on manufacturing capacity in Nigeria. The study investigated the impact of the foreign direct investment on manufacturing capacity as well as the impact of other control variables like exchange rate and inflation rate on manufacturing capacity in Nigeria. The results from the empirical findings revealed that, there are mixed findings on the subject matter and foreign direct investment have impacted economic performance in Adigwe, Ezeagba and Francis (2015) and Mohd and Izhar (2014)while other study like the study of Aitken and Harrison (1999)and Adamu and Bende (2013) reveal an insignificant impact of foreign direct investment on domestic firm performance and economic growth at large.

The analytical findings of this study revealed that foreign direct investment facilitated improved manufacturing capacity in Nigeria. In the same vein, while FDI showed positive and significant role on manufacturing capacity in Nigeria, control variables like EXR also showed positive and significant impact on manufacturing capacity in Nigeria while INFR impacted both positively but insignificantly on manufacturing capacity in Nigeria within the period under consideration. It is therefore important to note that, even though there are diverse benefits and threats from foreign direct investment on manufacturing output/capacity and possible economic opportunities; but, the Nigerian scenario has experience more economic setbacks from movement of foreign investment into Nigeria to other nearby African countries to boost and secure their invested capital in the long run as a result of re-occurring high level of insecurity, negligence of government to sensitive investment matters for political reasons and secession threat of some region of the economy since 1970 till 2017 the end period of the study.

However, the position of FDI can be well improved when the Nigerian governments encourage and improve the investment climate for existing domestic and foreign investors through infrastructural development, provision of services and changes in the

regulatory framework by relaxing laws on profit repatriation, improve security situation, address issues that threaten the unity of the country, consider investment agenda of the economy above political interest or affiliation and other positive values which will encourage them to increase their investments in the manufacturing sector of the economy and also attract new investors. In the case of domestic investors, an improvement in the investment climate will also encourage them to keep their wealth in the region.

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