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An Assessment of the Impact of Foreign Direct Investment on Industrial Performance in Nigeria

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ABSTRACT

Foreign Direct Investment has an impact on various aspects of the economy. This study beamed its searchlight on the impact of foreign direct investment on industrial performance. It specifically focused on the manufacturing subsector of the Nigerian economy from 1981 to 2021. The data used in the study were sourced from the World Bank Development Indicator which includes; manufacturing output, foreign direct investment, interest rate, exchange rate and inflation rate. The variables were subjected to unit root tests in other to ascertain their level of integration. However, the result indicates a mixed order of integration which informs the decision to adopt the ARDL method as the best technique of estimation. The results of this study showed that foreign direct investment exerts a negative and significant impact on manufacturing output in Nigeria in the long run. Conversely, the impact of foreign direct investment on manufacturing output is weak and positive on manufacturing output in the short run. This indicates that FDI can only contribute to the manufacturing subsector in the short run. The long-run results state a Negative significant impact of the inflation rate on the manufacturing sector of Nigeria. In the long run, disequilibrium in manufacturing output is adjusted at the speed of 34.4%. The pairwise Granger causality analysis reveals that there is no causal relationship between FDI and the Manufacturing sector. The study therefore recommends that Nigeria should focus on foreign direct investment that has an immediate impact on the manufacturing subsector, and also, any FDI with close substitute should be discouraged using fiscal policy that is, to discourage the inflow of FDI to the manufacturing subsector except for those with essential FDI with the nature to induce manufacturing subsector in the short run.

Keywords: Manufacturing output; foreign direct investment; short and long-term analyses; ARDL; Nigeria.

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INTRODUCTION

In the ever-evolving landscape of global economics, the phenomenon of Foreign Direct Investment (hereinafter FDI) is a crucial determinant of a nation's economic growth and industrial progress (Falki 2009). FDI, which entails the direct investment of capital and resources by foreign nations and business organizations into a host country, has long been regarded as a catalyst for industrial development and economic transformation. The intricate relationship between FDI and a nation's industrial performance has garnered significant attention, with researchers and policymakers alike seeking to unravel the complexities of this interaction. According to Akinlo (2004), FDI has been recognized as an important force that drives the growth of industrial development. Many nations that have experienced industrial advancements, increased productivity, high job creation, and technological knowledge transfer have been nations that have attracted substantial FDI. Within the African context, FDI has played a multifaceted role in the development of industrial terrains. The role of FDI in the industrialization effort of African countries has been subjected to various criticisms, most especially on the impacts of FDI on the local economies, job/employment generation and the transfer of appropriate technology for the African countries.

Nigeria is one of Africa's most populous nations and therefore qualifies as a good case study in examining the relationship between industrial performance and Foreign Direct Investment. Scholars have studied the relationship between FDI and industrial performance in Nigeria. Akinlo (2004) in his study looked at the relationship between FDI and economic growth in Nigeria, He explored the various means by which FDI positively influences industrial development. Oyejide *et al.* (2007) on the other hand examined the role of FDI in technology transfer and knowledge spillovers. The influx of FDI notwithstanding, the Nigerian manufacturing sector is yet to achieve the desired level of growth and development. It shows therefore that there is an interplay of forces that restrict the realization of the desired economic development.

Among the major problems in Nigeria's industrial landscape is the persistence of high inflation rates. This factor has the potential to erode the purchasing power of consumers, limit investment, and disrupt production processes. The unstable nature of interest rates further compounds these issues, thereby making it difficult if not outrightly impossible for businesses to project for the long term and invest in expanding their manufacturing capabilities. Additionally, the fluctuating exchange rate has introduced an element of uncertainty for foreign investors and local enterprises alike, impacting investment decisions and the overall competitiveness of Nigerian industries. By delving into the nuances of this relationship and drawing on insights from prominent scholars, this research aims to investigate the ramifications stemming from FDI on industrial performance in Nigeria focusing on the manufacturing sector from 1981 to 2021. This research will provide necessary information to the government in policy formulation relating to this sector. It will show how impactful is FDI and will help the government to formulate policies that will woo FDI into the country.

Likewise, the policymakers will find this study useful in understanding some decisions that are being made by the government and will help them to proactively make decisions especially when addressing issues of foreign direct investment. Also, the study will be of high value, especially to researchers in investigating the impact of FDI on the manufacturing sector. This study will also contribute greatly to the existing knowledge as it can serve as a material of reference for future research that may be carried out in the relevant area.

Literature Review

Foreign Direct Investment (hereinafter 'FDI') denotes the capital injection made by a company beyond its domestic borders, indicating a strategic allocation of resources for sustained profit generation in international production (Caves, 2007). While this description is accurate, its comprehensiveness is limited by the omission of vital considerations surrounding control and managerial aspects. The realm

of international investment encompasses dual manifestations. The first involves portfolio investment, where investors acquire non-controlling interests in stocks, bonds, or other financial instruments. In contrast, the second manifestation pertains to direct investment, wherein investors actively engage in both the management and control of the business venture. This latter category typifies the investment approach undertaken by multinational corporations, wielding a more pronounced influence on economic growth when juxtaposed with portfolio investment.

Manufacturing Sector

Manufacturing encompasses the creation of novel products either from raw materials or components and encompasses diverse sectors like automotive, bakeries, shoemaking, tailoring, paper production, pharmaceuticals, building materials, and chemicals. These entities engage in tangible product creation as opposed to service provision. The amalgamation of all facilities producing goods within a nation contributes to its industrial output, a pivotal factor in its economic development. This surge in industrial production, particularly manufacturing, addresses the burgeoning demand for goods in developing nations, which often face challenges due to balance of payment constraints.

The domain of manufacturing exists within the larger industrial sector. The manufacturing domain encompasses other domains such as processing, quarrying, crafts, and mining. Manufacturing, being the fundamental component responsible for processing within the industrial sector, takes on the pivotal task of transforming raw materials into finished consumer products or intermediary/producer commodities. Beyond generating employment opportunities, manufacturing synergizes with agriculture, bolsters economic diversification, and augments foreign exchange reserves if products are exported. This export-oriented approach curtails dependence on foreign trade, fostering the effective use of domestic resources. The extent of manufacturing activity provides valuable insights into the

proficient utilization of additional constituents within the industrial sector. The turnover within manufacturing indicates the quantity of commodities manufactured and industrial services provided during a designated period, quantified based on the prevailing market valuations. This financial measure encompasses income derived from goods sales and service provision, accounting for trade discounts and relevant taxes including the value-added tax which is directly associated with sales.

Foreign Direct Investment and the Manufacturing Sector in Nigeria

According to Funke & Nsouli (2003), numerous African nations have pursued strategies to enhance the business environments where they operate to attract FDI, a central objective encapsulated in initiatives such as the "New Partnership for Africa's Development" (NEPAD). Despite the recognized necessity for FDI on the continent, the majority of African countries have struggled to attract meaningful FDI inflows, particularly in sectors beyond extractive industries. Nigeria, with its ample natural resources coupled with an expansive market dimension, is poised to benefit significantly from FDI, yet its actual FDI inflow remains modest compared to its potential (Asiedu, 2005). The existing relationship between FDI and the growth of Nigeria's manufacturing sector has been a subject of scholarly investigation, yielding varied outcomes (Akinlo, 2004). The prevailing understanding of this relationship has evolved, recognizing that it can be influenced by specific country contexts and periods (Asiedu, 2001). Nigeria's manufacturing sector, despite holding potential, faces barriers such as insecurity, political instability, weak infrastructure, and corruption (Dipak and Ata, 2003; Adenikinju, 2003). Some argue that shifts in demand and supply dynamics, driven by advancements in technology and living standards, contribute to the sector's challenges and the need for foreign investment to drive technological progress. Despite efforts to attract FDI, Nigeria's manufacturing sector's growth remains hindered, impacting the country's journey toward economic diversification and development. The dynamics of FDI inflow and its impact on manufacturing require a nuanced understanding of local

context and global trends for effective policy formulation and economic progress.

Theoretical Literature

Several theories have been postulated by scholars to explain issues related to Foreign Direct Investment and the manufacturing sector, two of these theories are reviewed below:

Theory of Internalization

The Internalization theory propounded by Buckley & Casson (1976) and Hennart (1982) was used to address market imperfections. This theory emerged due to firms' aspiration to capitalize on their monopolistic advantages by undertaking activities themselves. The theory suggests that companies can overcome market imperfections by internalizing their operations, encompassing vertical coordination wherein new functions are managed internally that were previously outsourced to intermediaries. The foundational concepts of this theory trace back to Coase (1937) within the domestic context, while Hymer's (1976) perspective focuses on an international context. While exploring written literature, two significant factors were identified for driving FDI: firstly, the elimination of competition and secondly, the unique advantages possessed by certain firms in specific activities. Buckley and Casson (1976) proposed that firms organize their internal processes to leverage specific advantages, which they intend to exploit. The crux of the Internalization theory lies in understanding why firms opt for Foreign Direct Investment instead of contracting with foreign subcontractors. The concept of internalization elucidates the motivations behind firms' foreign direct investments, as they seek to harness various government economic policies and other incentives for their benefit.

Dependency Theory

The Dependency Theory, drawing insights from the Latin American experience, asserts that the interactions marked by free trade and foreign investment between industrialized nations and developing

economies stand as the major drivers of the continuous underdevelopment and intense exploitation of the recipient countries (Wilham and Witter, 1998). This theory places a central emphasis on the dynamics within the context of the "centre" and the "periphery." The more advanced and industrialized nations make up the centre, while the Global South countries make up the periphery. Within this framework, Foreign Direct Investment is perceived as a medium facilitating the mechanism by which the core capitalizes on the periphery, further entrenching the latter's condition of underdevelopment coupled with reliance.

Paradoxically, rather than fostering economic advancement, foreign investment is seen as stifling such growth and perpetuating the dominion of weaker states. Multinational Corporations (MNCs) bear the brunt of allegations, labelled as agents of exploitation. These assertions are deeply rooted in the multinational entities that have frequently been implicated in the extraction of natural resources, often without commensurate benefits accruing to host economies (UNCTAD, 1999). The Dependency Theory represents a direct response to this perceived "extractive nature" inherent in the practices of Foreign Direct Investment.

Empirical Literature

Prior inquiry into the relationship between FDI along industrial performance has yielded mixed results, with some studies suggesting a negative correlation and others highlighting a positive relationship. Opoku and Boachie (2020) conducted a study that investigated the ecological consequences of FDI and industrialization in 36 chosen African nations spanning the years 1980 to 2014. The study assessed environmental impact through several variables, including emissions of environmentally harmful or poisonous gases such as carbon dioxide, nitrous oxide, methane, and total greenhouse gases. The research employed the Pooled Mean Group estimation technique to analyze the data. The findings revealed that the influence of industrialization on the environment demonstrated overall insignificance. While the

impact of foreign direct investment on the environment emerged as notably significant.

Acquah & and Ibrahim (2020) studied the linkage between FDI, economic growth, and financial sector development using yearly panel data sourced from 45 African countries between 1980 to 2016. The results of the analytical methodology derived from the two-system generalized technique of moments reveal a nuanced influence of FDI on economic growth, with a proclivity towards higher growth observed in connection with increased FDI, but with some ambiguity. This emphasizes the contingent aspect of FDI's effect on economic growth, which is dependent on the model used. The research uncovers an unusual finding: the growth-inducing effect of FDI on the economy is mitigated by finance sector dynamics.

Ayanwale (2017) used the Ordinary Least Squares technique to explore the empirical correlation between non-extractive FDI and economic development in Nigeria from 1975 to 2016. The National Bureau of Statistics (hereinafter NBS) and the Central Bank of Nigeria (hereinafter CBN) provided relevant data for this study. The data revealed a positive relationship between FDI and economic growth, albeit there is a caveat about the likely absence of a meaningful overall influence on economic growth. To examine the causal relationship between manufacturing output within the Nigerian context and FDI, Mounde (2017) adopted industrial production as a representative indicator to gauge manufacturing output. A time series data spanning thirty-six years between the years 1981 to 2016 was collected from the CBN and the NBS. The study outcomes brought to the fore the sustained nexus between FDI and the augmentation of manufacturing sector output, particularly as measured by industrial production, over an extended temporal span. Mounde (2017) in the study employed an error correction model to dive into the transient dynamics, analyzing the extent to which equilibrium tendencies guide short-term variations. Furthermore, using the Granger causality test, the

investigation showed a mutual causal link between these variables, showing influence flowing in both directions.

Nkalu, Edeme, and Ifelunini (2016) investigated the relationship between developmental actions, the inflow of foreign capital and growth in the Nigerian economy. Special focus was on the influence of FDI on Nigerian economic growth. The study relied on the data from the Central Bank of Nigeria Statistical Bulletin in the yearly time-series data from 1970 to 2015. The result showed a statistically significant positive relationship between economic development in Nigeria and FDI. Utilizing the classical linear regression model to investigate the influence of FDI on the Nigerian manufacturing sector, Orji *et al.* (2015) by drawing upon pertinent data obtained from the statistical bulletins of the Central Bank of Nigeria (CBN), delved into the impact of the FDI on the manufacturing sector between the years of 1970-2010. The findings of this study brought to light a negative correlation linking FDI to the manufacturing sector. Given these conclusions, the researchers proposed a potential remedy by advocating for an increased influx of FDI into strategic sectors that provide essential inputs and raw materials crucial to local industries.

Ebekozien, Ugochukwu, and Okoye (2015) meticulously examined the ramifications of FDI inflow trends in the Nigerian construction industry using a comprehensive methodological framework that included simple percentages, regression analysis, the 'Duncan Multiple Range Test', and the 'Granger Test'. The core dataset for this research was obtained from reputable works including publications from CBN and the NBS. Their research revealed a significant imbalance in the flow of FDI into the construction industry when compared to other sectors of the economy. In a similar vein, Anowor *et. al* (2013) examined the contributions of FDI towards the development of Nigeria's manufacturing sector using the Ordinary Least Squares (OLS) estimate approach. They conducted their study utilizing yearly time series data between the years of 1970 to 2011, mostly from the CBN Statistical Bulletins of 2012. Their research uncovered a statistically significant

association between FDI and manufacturing sector output growth. The study also looked at other factors including the currency rate, trade openness, and domestic investment, all of which had an impact on manufacturing sector development.

METHODOLOGY

The economic literature, focusing on the impact of FDI on industrial performance, has prominently favoured the manufacturing sector as a dependable gauge of industrial prowess. Consequently, this study will employ the manufacturing sector's output as an indicator to assess industrial performance.The major aim of this study is to ascertain the inherent relationship between foreign direct investment and industrial performance. To achieve this, this study will explore this relationship within the context of Nigeria, spanning the years 1981 to 2021. This study will adopt the Autoregressive Distributed Lag (ARDL) approach as proposed by Pesaran et al. (2001), which offers advantages over the methodologies introduced by Engle & Granger (1987) and Johansen (1991), effectively surmounting their inherent limitations. A notable advantage of this technique is its adaptability in conducting limit tests for regressors of various natures, encompassing pure I(0), pure I(1), or mixed cointegration characteristics. This attribute serves to mitigate the inherent potential for biases linked to unit root and cointegration tests, ensuring a more robust analytical framework. The data underpinning the variables scrutinized while conducting this study were sourced from the World Bank Group, encompassing the years 1981-2021 and exclusively focusing on Nigeria. Then, we considered the following specification:

$$MFO = f(FDI, INTR, EXCR, INFL) \quad 3.1$$

$$MFO = \beta_0 + \beta_1 FDI_t + \beta_2 INTR_t + \beta_3 EXCR_t + \beta_4 INFL_t + \mu_t \quad 3.2$$

In the context of this study, the variables are defined as follows: MFO represents manufacturing output, and FDI denotes foreign direct investment inflow into Nigeria; INTR= lending Interest rate; EXCR= exchange rate average as against USD; INFL = inflation as measured by consumer price index and in this contest U_t represents the error term, which is posited to lack serial correlation while exhibiting both an

average of zero and an unchanging variance. The model's parameters play a pivotal role in quantifying the extent to which the variables respond to changes in economic growth.

Dickey-Fuller (1979, 1981) 'unit-root test' was adopted at the preliminary stage. The fundamental aim of this test was to confirm that the variables under scrutiny were not characterized by I(2) properties, a crucial step to avert potential inaccuracies in the outcomes. Proceeding to the subsequent phase, we engaged in cointegration tests following the methodologies outlined by Pesaran *et al.* (2001) & and Narayan (2005). Should the computed F-statistic resulting from these tests fall beneath the lower threshold, the inference drawn would indicate that the variables were indeed I(0), implying an absence of cointegration. Conversely, if the F-statistic surpassed the upper threshold, the conclusion would lean towards the presence of cointegration. The ARDL procedure further categorizes the variables into two distinct roles, designating them either as reliant or descriptive components. As a result, within this context, the error adjustment formulation of the ARDL specification corresponding to Equation (1) is as follows:

$$\Delta lnMFO = \beta_0 + \sum_{l=i}^{P} \beta_1 \Delta lnMFO_{t-i} + \sum_{l=i}^{Q} \beta_2 \Delta lnFDI_{t-i} + \sum_{l=i}^{R} \beta_3 \Delta lnINTR_{t-i} + \sum_{l=i}^{S} \beta_4 \Delta lnEXCR_{t-i} + \sum_{l=i}^{T} \beta_5 \Delta lnINFL_{t-i} + +\varphi_1 \Delta lnMFO_{t-i} + \varphi_2 \Delta lnFDI_{t-i} + \varphi_3 \Delta lnINTR_{t-i} + \varphi_4 \Delta lnEXCR_{t-i} + \varphi_5 \Delta lnINFL_{t-i}$$

Where: β_O = intercept (or regression constant), β_x = short-term coefficients, φ_x= long-run coefficients and ln= natural logarithm

Conclusively, we conducted a series of diagnostic tests to ensure the robustness of our model. These tests encompassed the 'Breusch-Pagan-Godfrey test' to assess 'Heteroskedasticity', the 'Serial

Correlation LM test', and the 'Ramsey test'. Their common goal included a thorough analysis aimed at verifying our proposed model. Moreover, the cumulative sum (CUSUM) and cumulative sum of squares (CUSUMSQ) techniques were adopted to examine the stability of the model's parameters. This stability assessment is pivotal in confirming the reliability of our findings. If the plotted results remained within the critical boundaries defined by a 5% significance level, we would uphold the null hypothesis. This signifies the stability and integrity of all coefficients within the given regression model, thus precluding their rejection.

Empirical Findings

Table 4.1 Unit Root Stationarity Result

Variables	ADF Statistic	Critical Value	Order of integration
MFO	-4.7954	-3.5331 (5%)	I(1)
FDI	-9.7223	-3.5331 (5%)	I(1)
INTR	-6.2934	-3.5331 (5%)	I(1)
EXCH	-5.6796	-3.5331 (5%)	I(1)
INFL	-4.4753	-3.5331 (5%)	I(0)

Source: Author's computation using E-Views Software, Version 10.0

Our initial step encompassed the examination of variable stationarity. The outcomes, as presented in Table (4.1) above, indicate that only INFL exhibits stationarity at the level, while other variables (MFO, FDI, INTR and EXCH) demonstrate stationarity through their first differences. These findings affirm the suitability and utilization of the ARDL approach, substantiating its applicability in our analysis.

Table 4.2: F-Bounds Test for Co-integration

F-Bounds Test	Null Hypothesis: No levels of relationship			
Test Statistics	Value	Signif.	I(0)	I(1)
	Asymptotic: n =1000			
F-Statistic	6.213319	10%	2.38	3.13
K	4	5%	2.14	4.97
		2.5%	3.4	4.36

	1%	3.81	4.92

Source: Author's computation using E-Views Software, Version 10.0.

Following the stationarity assessment of the variables, the ARDL bound test was used to explore the potential presence of a sustained relationship among the variables. As evidenced by the outcomes detailed in Table (4.2) above, the F-statistic surpasses the I(1) bound threshold at a significance level of 1%. This robust result confirms the existence of a long-term cointegration relationship among the variables within this model.

Table 4.3: Short-term Coefficients of the Estimated ARDL Model

Dependent Variable LNMFO

Variable	*Coefficient*	*Std. Error*	*t-Statistic*	*Prob.*	*Remarks*
LNMFO(-1)	0.696225	0.112187	6.205938	0.0000	*Significant*
LNFDI	0.045097	0.022933	1.966498	0.0509	*Significant*
LNFDI(-1)	-0.041644	0.021635	-1.462675	0.1565	*Not significant*
LNFDI(-2)	0.028345	0.022526	0.814370	0.4234	*Not significant*
INTR	0.345773	0.128739	3.307246	0.0033	*Significant*
EXCH	-0.273586	0.056269	-3.600285	0.0027	*Significant*
INFL	-0.022255	0.024744	-0.495266	0.3149	*Not significant*
INFL (-1)	-0.067022	0.022821	-3.418906	0.0035	*Significant*
C	4.782054	2.429771	2.626195	0.0171	*Significant*
ECT	-0.344775	0.050488	-6.82885	0.0000	*Significant*
Adjusted R-squared	0.89149	Durbin-Watson stat 1.9048			
Prob. (F-statistic)	0.0000				

Source: Author's computation using E-Views Software, Version 10.0

According to Table 4.4, the combined influence of FDI, Interest Rate (INT), exchange rate (EXCH) and Inflation Rate (INFL) account for about 89.15% of the variation in manufacturing output, as indicated by the *Adjusted R-squared*. In addition, this model is shown to be

statistically significant ($F_{prob.}$ (0.000) < 0.05). bThe p-value of current foreign direct investment is shown to be less than 5% (0.05). This means that current foreign direct investment is a significant exponent of manufacturing output in the short run. More specifically, a 1% increase in current foreign direct investment will lead to a 4.5% increase in the manufacturing output in the short run. This is similar to the outcome obtained for the current interest rate where a 1% increase in interest rate will result in a 34.5% significant increase in MFO. Whereas, inflation rate and exchange exert a negative impact on manufacturing output. More specifically, a 1% increase in inflation and exchange rate will bring about 2.2% and 27.3% respectively in manufacturing output.

The p-value of manufacturing output at lag 1 is shown to be less than 5% (0.05). This means that manufacturing output at lag 1 is a significant exponent of current manufacturing output. Similarly, the impact of the inflation rate at lag 1 on manufacturing output is seen to be negatively significant which indicates that a 1% increase in the inflation rate in the current year will lead to a 6.7% decrease next year. The p-values of foreign direct investment at different lags show the instability in the influence exerted by FDI on manufacturing output. Furthermore, it is conspicuous that the error correction term (ECT) which is representative of the long-run relationship is both negative and statistically significant. Therefore, every disequilibrium in manufacturing output is corrected at a speed of 34.4%.

Table 4.4: Long-Run Coefficients

Variable	*Coefficient*	*Std. Error*	*t-Statistic*	*Prob.*	*Remark*
LNFDI	-0.061107	0.021851	-2.796531	0.0395	*Significant*
INTR	-0.032104	0.011847	-2.709884	0.0415	*Significant*
EXCH	-0.426893	0.165030	-4.041045	0.0005	*Significant*
INFL	-0.202182	0.100214	-2.017502	0.0461	*Significant*

Source: Author's computation using E-Views Software, Version 10.0

The long-run estimate indicates that each of the variables possesses a negative and significant relationship with the manufacturing sector. More importantly, the long-run relationship between foreign direct investment and manufacturing output is significant at the 5% degree of freedom (0.0395 < 0.05) and every 1% increase in FDI will be reversed MFO by 6.11%. this result conforms to the dependency theory and also corroborates with the work of Osisanwo (2013) and the finding of Ayanwale (2007).

In the same vein, the long-run relationship between the inflation rate, exchange rate, and interest rate with productivity in the manufacturing sector is negative and significant at a 5% significance level and every 1% in the inflation rate, exchange rate and the inflation rate will bring about 0.20%, 0.43% and 0.032% respectively harm to the manufacturing sector across the prolonged timeframe.

Table 4.5: Diagnostic Assessments for Model Precision and Dependability

Breusch-Pagan-Godfrey Serial Correlation LM Test			
F-statistic	0.494544	Prob. F (2,22)	0.7778
Obs*R-squared	0.938824	Prob. Chi-Square (2)	0.6254
Breusch-Godfrey Heteroskedasticity Test			
F-statistic	0.660183	Prob. F (11,24)	0.6935
Obs*R-squared	7.973085	Prob. Chi-Square (11)	0.7157
Residual Normality Test			
Jarque-Bera	1.725616	Prob.Value	0.421975
Specification and Stability test			
	Value	Df	Probability
t-statistic	1.745233	23	0.2949
F-statistic	1.782846	(1, 23)	0.1449

Source: Author's computation using E-Views Software, Version 10.0

The result of the diagnostic test shows that since the probability that the residuals are normal (42%) is greater than the 5% critical level, then the null hypothesis is not true and residuals are normal. Also, since the estimated probability of 78% is greater than the 5% critical level, there is no serial correlation with the residuals.

For this study, the Breusch-Pagan-Godfrey test for heteroscedasticity shows that the model is homoscedastic since the probability value (69%) is greater than the 5% critical level. In a similar vein, Ramsey's Regression Specification Error Test (RESET) determines the existence of missing or incorrectly stated variables. From Table 4.6, the probability that this is true is 29%. Since this probability is greater than the 5% critical level, we reject the null hypothesis of misspecification.

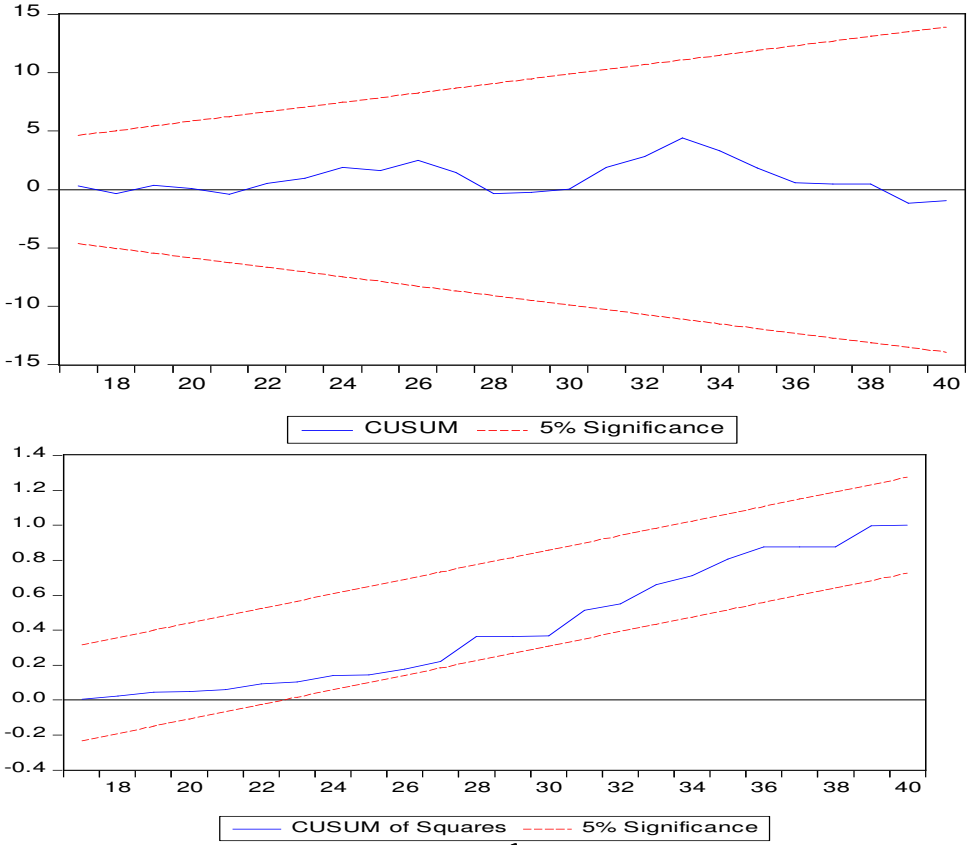

Figure 4.1: CUSUM & CUSUMSQ for Stability within 5% Critical Level

Finally, the model's stability was evaluated employing the cumulative sum of recursive residuals (CUSUM and CUSUMSQ) approaches. This examination conclusively proves the consistency of an estimated equation during the time under study. As seen in Figure 4.1, the predicted model parameters (represented by blue lines) are always within the 5% crucial boundary lines. Therefore, the model is stable. Indeed, with the validated correctness, reliability, specification, and

durability of the inferred ARDL model, the coefficients of the independent variables hold significance in explaining variations and trends in productivity within the manufacturing sector from 1981 to 2021

DISCUSSION

There has been a conflicting interest among scholars concerning the impact of FDI on the manufacturing sector. Some scholars argued that FDI is impactful, while others found out that FDI is an insignificant component that makes up the manufacturing sector in Nigeria. Anowor *et al.*, (2013) revealed that FDI was related and statistically significant to the growth of the manufacturing sector in Nigeria. However, Ayanwale (2007) opined that the overall effect of FDI on economic growth may not be significant. The result from this study agrees with the work of Anowor, Ukweni, Ibiam and Ezekwem (2013) that the impact of FDI on the manufacturing sector is negative and significant. This implies that FDI will only benefit the host country within the immediate term, and continuous increase over the extended term will harm the sector thereby causing a downturn in the manufacturing sector and likewise the productivity of the country. Contrarily, interest rates proved to exhibit a substantial and adverse effect on the manufacturing sector's output which conforms with theoretical expectations. The manufacturing sector seems to be very sensitive to changes in exchange rates. The inflation rate exerts a negative and significant influence on the sectorial outputs. The overview conclusion is that foreign direct investment exhibits a statistically significant negative effect on the manufacturing output. The main implication evident from the discoveries of this study is that, given that FDI is a negative and significant component that makes up the manufacturing sector of Nigeria's economy, it has implications for the diversification of foreign direct investment to other sectors (such as transportation, communication, etc.) of the economy that can be strengthened by such investment.

CONCLUSION AND POLICY RECOMMENDATIONS

This study mainly set out to interrogate the impact of foreign direct investment on the industrial performance of the Nigerian economy with particular interest within the realm of the manufacturing sector (1981-2021) using time series data sourced from World Development Indicators. The econometric procedure adopted for the estimation of the time series was the dynamic ARDL model which was informed by the mixed order of integration. The result from ARDL bound test to cointegration shows that the variables of interest were co-integrated which signified a state of long-term equilibrium. Relationships among the variables. Unfortunately, foreign direct investment exerts a negative and significant impact on the manufacturing sector in the long run. However, in the short run; there exists a positive but insignificant impact of FDI on the manufacturing sector. Encouragingly, a decrease in interest rate accounts for a significant upward trend in the manufacturing output for the period under consideration. Also, the exchange rate demonstrates a negative and significant impact on the manufacturing sector in both terms. However, the inflation rate was found to have a negative and significant impact on the manufacturing sector in both terms.

This study based on cues from the findings and conclusion enumerates the following recommendations:

(i) Nigeria should focus on FDI that has an immediate influence on the manufacturing subsector, and also, any FDI with close substitutes should be discouraged using fiscal policy. That is, to discourage the inflow of FDI to the manufacturing subsector except for those with essential FDI with the nature to induce the manufacturing subsector in the short run

(ii) It is suggested that the unhealthy relationship, in the long run, could potentially be finetuned peradventure the country experiences augmented inflow of FDI to strategically important industries that offer crucial inputs and raw materials to indigenous firms.

(iii) Otepola (2002), associated the adverse effect of FDI with the limited extent of available human capital skills, which fails to

stimulate FDI inflow. This suggests that Nigeria lacks the required and sufficient human capital capabilities to allow FDI to have a substantial influence on the manufacturing sector. Hence, there is a crucial need to focus investment efforts on enhancing human capital skills to bolster the influence of FDI on the manufacturing sector.

(iv) A decrease in the ratio of naira to dollar (exchange rate) will improve productivity within the manufacturing sector. The exchange rate affects the manufacturing sector negatively because raw materials and machinery used in the sector are imported. Therefore, a decrease in the importation of raw materials and machinery and a focus on the use of local raw materials will reduce the rate of exchanging naira for dollars. Thus, the exchange rate should be moderated.

(v) Also, exports of manufactured goods should be encouraged as this will reduce the ratio of naira to the dollar (exchange rate). Thus, when the naira appreciates against the dollar, the output of the manufacturing sector will increase. Therefore, there is a need for the government through the monetary authority to devise means that will favor Naira against the dollar.

(vi) Finally, the monetary authority should tighten interest rates which has a significant impact on investment and productivity in the manufacturing sector according to the study. Given the finding, a decrease in interest rate will cause growth in the manufacturing sector. However, the government through the monetary authorities should reduce the rate of interest charge on loans acquired for the manufacturing sector to stimulate investment in the area, which will lead to increased productivity.

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