FOREIGN DIRECT INVESTMENT AND MACROECONOMIC DYNAMICS IN NIGERIA

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ABSTRACT
Using time series data from the Central Bank of Nigeria statistical Bulletin (CBN, 2023) and the World Development Indicators (WDI, 2023), this study examined the effects of Foreign Direct Investment on Gross Domestic Product, Gross Capital Formation and Manufacturing Capacity Utilization in Nigeria during the 1986-2022 periods. Autoregressive Distributed Lag (ARDL) technique was adopted to estimate the dynamic relationship among the variables. The results indicated that FDI has a positive and statistically significant impact on both GDP (2.603904) and Gross Capital Formation (0.198195), but positive and non-significant impact on Capacity Utilization. The implication of the foregoing is that increase in FDI will increase GDP and Gross Capital Formation in the short run, while all the variables has a long run convergence to equilibrium.
Keywords: FDI; Capital Formation; Capacity Utilization; Economic Growth
JEL Classification: E60, F35, H11, O40.

1. INTRODUCTION

FDI is a critical aspect of the global economy that involves investments made by non-resident entities or individuals where they hold at least 10% of the equity in a resident investment (Keita & Baorong, 2022). Buckley (2023) referred to these businesses as Multinational Enterprises (MNEs). Foreign Direct Investment (FDI) has emerged as a pivotal force in accelerating economic transformation, fostering capital formation, and advancing productivity in emerging economies (Habibu & Murtala, 2024; Okereke, et. al., 2023). In Nigeria, FDI is a critical drive for advancing structural change, modernizing industries, and enhancing economic competitiveness. By attracting FDI, Nigeria seeks to leverage foreign capital, managerial expertise, and advanced technologies to bridge domestic savings gaps, promote export diversification, and stimulate sustainable economic growth. Yet, the macroeconomic effects of FDI in Nigeria are complex, shaped by an array of endogenous and exogenous factors, including policy shifts, resource dependencies, and volatile commodity prices.

The trajectory of FDI in Nigeria reflects an evolution shaped by both domestic policy decisions and global economic shifts. In the post-independence era, FDI inflows were predominantly concentrated in the extractive sectors, particularly oil, as Nigeria capitalized on its vast natural resources (Habibu & Murtala, 2024). The 1970s oil boom significantly bolstered FDI inflows, aligning with Nigeria's ambition to become a global oil exporter (World Bank, 2023). However, this growth was curtailed by a series of indigenization decrees aimed at promoting local ownership, which inadvertently dampened foreign investors' confidence and stunted sectoral diversification (Saibu & Keke, 2014, UNCTAD 2020).
The late 1980s marked a turning point with the introduction of the Structural Adjustment Program (SAP), which encouraged trade liberalization, deregulation, and privatization, signaling a departure from protectionist policies. These reforms, albeit controversial, were

intended to diversify FDI beyond hydrocarbons and promote private sector development. Nonetheless, Nigeria's FDI landscape has remained volatile, influenced by economic shocks, regulatory uncertainties, and governance challenges (Asiedu, 2006). The precarious dependence on oil has exposed Nigeria to external vulnerabilities, underscoring the importance of attracting diversified FDI that can stabilize economic growth and mitigate structural weaknesses.

In recent times, the federal government of Nigeria has embarked on serious drive to curry FDI into the Nigerian economy. Whether this move is to the advantage of the local economy is still subject of debates. This study is an attempt to contribute to on-going debates on the impact of FDI on the growth of developing countries, especially Nigeria. Following the introduction which is the Section One of this article, the remaining sections are arranged as follows; Section two is the Literature Review; Section three discusses the Methodology; Section four contained the Results and Discussions of findings; while section five is the summary & conclusions.

2. REVIEW OF LITERATURE

2.1. Theoretical Literature

A number of scholars have tried to explain the phenomenon of FDI without conclusion yet of a generally accepted theory. This is because new evidence keeps adding some new elements and discarding previous ones. Ricardo's theory of comparative advantage was initially considered a basis for explaining foreign direct investment (FDI). However, this theory, which assumes two countries, two products, and perfect factor mobility domestically, does not accommodate the nature of FDI, as it lacks mechanisms for cross-border investments. Recognizing this limitation, economists then turned to portfolio theory which describes foreign investments as assets within a diversified portfolio, suggesting that capital should flow from low-interest to high-interest countries, and assuming an absence of risk and barriers. The theory also falls short in explaining FDI, as it fails to address the unique motivations behind direct investments, which often involve control and management over foreign enterprises, unlike passive portfolio flows. When real-world factors such as capital movement restrictions and investment risk are considered, the predictive power of portfolio theory erodes. In practice, these factors enable capital to flow freely across borders irrespective of simple interest rate differentials, thereby limiting the theory's explanatory reach for FDI flows (Hosseini, 2005).

Popular theoretical considerations in discussing FDI include;

Production Cycle Theory

Raymond Vernon's production cycle theory developed in 1966 was used to explain certain types of foreign direct investment made by U.S. companies in Western Europe after the Second World War in the manufacturing industry. It postulates that FDI by MNEs is closely aligned with the lifecycle stages of a product; innovation, growth, maturity, and decline, each driving strategic relocation and investment decisions.

Initially, in the innovation stage, high-income markets serve as the locus of product development due to their advanced consumer base and research capabilities. As the product enters the growth stage and demand broadens internationally, firms may expand production to other developed economies to capitalize on established demand and lower logistics costs. During the maturity stage, the product becomes standardized, prompting firms to pursue cost efficiencies by shifting production to lower-cost regions. In the decline stage, as the product's relevance wanes in advanced economies, firms may consolidate production in low-cost locations or exit markets. This theory explained certain types of investments in Western Europe made by U.S. companies between 1950-1970. Although there are areas where Americans have not possessed the technological advantage and FDI were made during the period.

Industrial Organization Theory: Internalization

Hymer's work based on market failure theories has the basic assumption that profit maximization occurs in the midst of imperfect markets. The theory shifted attention from the neoclassical trade theory to the industrial organization theory by changing the focus of multinational theory from the macro to the micro (Dunning and Rugman, 1985).

Buckley and Cason (1976) made the first comprehensive attempt to show how cross border transactions involving intermediate products were internalized within Multi-National Corporations rather than within markets. In their theory, they pointed out that modern businesses extend their activities to include interdependent activities such as marketing, research and development, training, and managerial skills. These activities are linked by flows of intermediate products which require a separate market.

The Ownership-Location-Internalization (OLI) Framework

By the late seventies, there was a need to unify the theories of FDI, as previous theories focused on particular directions in their analysis. This was in order to consolidate the reasons why a firm will decide to engage in FDI. Thus in 1976, during a Noble symposium at Stockholm, John Dunning introduced a comprehensive blend of the trade theories with internalization theory to develop the OLI eclectic theory of FDI. OLI stands for Ownership-Location-Internalization advantages (Dunning, 1994). The OLI eclectic theory shows that OLI parameters are dissimilar from company to company and depend on the socio-economic and political characteristics of the host country. Hence, the objectives of firms, as well as their production pattern will depend on the opportunities and challenges offered by the different host countries (Vintilla, 2010).

2.2. Empirical Literature.

The body of literature extensively discusses the influence of foreign direct investment (FDI) on economic growth, with findings ranging across sectors and regional contexts. Fazaalloh (2024) investigated FDI's impact on Indonesia's economic growth, utilizing sectoral data across 33 provinces from 2010 to 2019. Using a fixed effects model, Fazaalloh found that, overall, FDI significantly promotes economic growth in Indonesian provinces. However, sector-specific analysis, particularly within agriculture, indicated that FDI exerted a notably adverse impact. Parallel studies, such as those by Zghidi et al. (2016), Tahir et al. (2019), and Sahu (2021), also support a positive FDI-growth linkage across countries, while others, including Herzer (2012), Agloboyor et al. (2016), and Alvarado et al. (2017), observed either negative or statistically insignificant effects of FDI on growth.

In the Nigerian context, Emeka (2024) concluded that FDI positively influences economic growth by bolstering capital formation and enabling technology transfer. Likewise, Nwagu et al. (2024) found that FDI enhances economic growth significantly, demonstrating long-run positive relationships between FDI, real GDP, trade openness, inflation, exchange rate, and human capital. Similar research by Mbadiwe and Anagha (2024), Millicent (2024), and Adelegan (2000) confirmed positive associations between FDI and specific dimensions of economic growth. Conversely, Amako et al. (2023), using the Generalized Method of Moments (GMM), revealed that FDI's impact is sector-dependent, with positive effects on manufacturing sector growth but negative influences on primary and tertiary sector growth. This finding aligns with the studies of Habibu & Murtala (2024), Abdullahi & Mohammed (2024), and El-Rasheed & Abdullahi (2022).

The role of capital markets in growth dynamics is also noteworthy. Shaibu et al. (2014) explored the relationship between foreign private investment and economic growth in Nigeria, applying a Vector Autoregressive (VAR) model. Their results indicated that while a large share

of capital inflows was not productively utilized, a smaller proportion of effectively invested inflows significantly contributed to Nigeria's economic growth. Furthermore, Otepola (2012) developed a model assessing the impact of FDI on growth where investment returns could be repatriated. The study suggested that opening the economy to FDI could displace domestic firms in research and development sectors, potentially diminishing national welfare due to capital outflows. In this model, FDI's effect on growth depends on the relative interest rates; a higher global interest rate than the domestic rate yields adverse effects, while a lower global rate promotes growth.

The implications from these findings suggest that while FDI generally supports economic growth, its effects vary by sector and macroeconomic conditions. Analyzing FDI's impact on aggregate growth could obscure nuanced sectoral differences. Consequently, this study emphasizes the importance of disaggregating economic growth metrics to comprehensively assess how distinct macroeconomic variables respond to FDI.

2.3. Gaps in Literature

The extant views about foreign direct investments and economic growth are yet to be in agreement. While many scholars see FDI as advantageous and extremely desirable especially in developing nations where capital insufficiencies for investment is the norm, there are studies showing that these investments "race" with local investors, and crowd out local entrepreneurs from the investment space, and as such deteriorate the local economy. The foregoing is a pointer to the need for further research on the relationship between FDI and economic growth variables, especially in Nigeria.

3. METHODOLOGY

3.1. Theoretical Framework

This study is anchored on the Ownership-Location-Internalization (OLI) theory of Dunning (1980), which shows that OLI parameters are dissimilar from company to company and depend on the socio-economic and political characteristics of the host country. This theory is particularly relevant for examining the relationship between Foreign Direct Investment (FDI) and economic growth, as it provides a comprehensive understanding of how FDI can influence growth through various channels. FDI brings financial resources, technology, managerial skills, and expanded market access, which can enhance productivity, innovation, and encourage job creation. In the case of Nigeria, this theory suggests that attracting FDI can contribute to economic growth by boosting investment, transferring technology, and prompting industrial development (Emeka, 2024).

3.2. Model Specification

Following the works of Bhasin and Gupta, (2017), a functional relation is specified as follows;

$$Y = f(FDI, X_i) \quad (1)$$

Where: Y = Dependent Variable; FDI = Foreign Direct Investment; X_i = other control variables
The statistical method used is Autoregressive Distributed Lag Model (ARDL) because of the inherent capacity of the method to account for the short and long run dynamics. The relation in equation one (1) is thus expressed in ARDL form in equation (2)

$$\Delta LnY = \alpha_0 + \sum_{i=1}^{d} \beta_{1i} \Delta Y_{t-i} + \sum_{k=1}^{f} \beta_{2i} \Delta LnFDI_{t-i} + \sum_{n=1}^{g} \beta_{3i} \Delta X_{i\,t-1} + \beta_{4i} LnY_{t-1} + \beta_{5i} X_{it-1} + \mu_t \quad (2)$$

Where α_0 = the intercept, and β_1-β_5 = parameters determining the significance of the independent variables. Equation (2) is the unrestricted measure of the long run association

among the variables (UECM). To be able to capture the speed of adjustment of the variables to long run equilibrium, a restricted specification of the model (ECM) is further specified in equation (3)

$$\Delta Y = \alpha_0 + \sum_{i=1}^{d} \beta_{1i} \Delta LnY_{t-i} + \sum_{k=1}^{f} \beta_{2i} \Delta LnFDI_{t-i} + \sum_{n=1}^{g} \beta_{3i} \Delta X_{it-1} + \lambda ECT_{t-1} + \varepsilon_t \quad (3)$$

Where λECT represents the error correction term that explains the long run convergence of the model and ε_t is the white noise error term.

3.2.1. Variable Definition and Measurement

The data for the variables in this study were sourced from the CBN statistical bulletin (2023) and the publication of the World Development Indicator, (2023). FDI is the foreign direct inflows at the 2015 constant price; GCF is the estimates of the gross capita formation; GDP is the measure of economic growth at the 2015 constant price; CU is the ratio of manufacturing capacity utilization to GDP

3.4. Data Sources

This study utilized time series secondary data for the periods 1986 to 2022. Collected data used in this study include the measures of FDI inflow, Real Gross Domestic Product (at 2015 constant prices), Gross Capita Formation and Ratio of Manufacturing Capacity Utilization.

4. RESULTS AND DISCUSSION OF FINDINGS

4.1. Descriptive statistics

Results of the descriptive statistics is presented in table 4.1.

Table 4.1. Descriptive Statistics

	Mean	*Median*	*Std. Dev.*	*Skewness*	*Kurtosis*	*Jarque-Bera*	*Prob*	*Obs*
GDP	41890.37	36431.37	20815.02	0.350276	1.4795	4.3209	0.1153	37
FDI	57122.43	44442.71	37644.86	0.641695	2.4197	3.0584	0.2167	37
CU	45.51351	45.34	8.402233	-0.08863	2.1456	1.1740	0.5560	37
GCF	8697.754	8418.88	1670.091	0.136503	2.0222	1.5890	0.4518	37

Source: Computed by the Authors

The table revealed that GDP is not centrally spread considering the Mean and Median values. Its Skewness value of 0.35 is an indication of a closely symmetrical distribution. Although its kurtosis value of 1.47 indicated that the distribution is less picked than normal however the Jarque-Berra value of 4.32 and Probability of 0.1153 indicated that the data do not strongly deviate from normality. Similarly data on FDI indicated a moderately skewed spread towards the left. The kurtosis value (2.42) tended towards normal peakedness. All the variables, indicated normality in distribution. This study concluded that the data is healthy for analysis.

4.2. Unit Root test

Table A4.1 (see appendix) is the summary result of the unit root properties for the variables in this study. Ln {GDP} and Ln {GCF} become stationary (with very low p-values) after differencing. Ln {FDI} and CU are stationary at levels (with low p-values). The existence of both I (1) and I (0) variables lend credence to the conduct of bounds test.

4.3. Cointegration test

Trace test indicated 2 cointegrating equation at the 5% level. This implies that two linear combinations of the variables exhibit a long run relationship. The cointegrating relationship are also statistically significant at the 5% level of significance (see table A4.2 in the appendix). Expectedly, while the variables in this model exhibited short term deviations, they will return to long-run equilibrium.

4.4. Results of Estimation

Bounds Tests

Result of the bounds test are reported in tables A4.3, A4.4, and A4.5, with GDP, GCF and CU as dependent variable in each table. The null hypothesis is that there is no long-run relationship between the variables. In table A4.3, the F-Statistic (3.774342) compared against the critical values for different significance levels (10%, 5%, 2.5%, and 1%) is above the I(0) bounds for the 5% significance levels (3.67) at 5% level of significance. Thus, we reject the null hypothesis. Similarly, in table A4.4, the F-Statistic (8.044192) is above the I(0) bounds for all levels of significance, thus, we reject the null hypothesis.

The bounds test performed with CU as the dependent variable reported in table A4.5 indicated a long run association in the model at the 2.5%, 5% and 10% levels of significant, and indeterminate at the 1% level of significance. Since this study relied on the 5% level of significance, it is suffice to conclude that a long run association is confirmed for the model. Overall, there is evidence of a long-run association among the variables in the model. The specified model in equation 3 is estimated, and the result presented in table 4.2.

FDI and Macroeconomic Variables

Table 4.2.is the summary of ARDL result estimated in this study. Detailed result is presented in the appendix tables A4.6, A4.7 and A4.8 respectively. FDI has a significant positive effect on GDP. A 1% rise in FDI is associated with about 2.6% rise in GDP in the short run. The p value of 0.0236 is below the 0.05 threshold, thus, suggesting that the relationship between FDI and GDP is statistically significant in this study. The error correction term (ECT) is also negative and statistically significant, indicating a strong adjustment mechanism towards long-run equilibrium, deviations from the long-run equilibrium are corrected at a rate of approximately 67% per period This suggests that the economy can correct deviations from its growth path relatively quickly, contributing to economic stability.

Table 4.2. Impact of FDI on GDP, GCF and CU

Variables	*Coefficients*	*Standard errors*	*t-stat*	*Prob*	ECT_{t-1}
$LnGDP_t$	2.603904	1.085493	2.400112	0.0236**	-0.67012 (0.000)*
$LnGCF_t$	0.198195	0.020449	2.775340	0.0437**	-0.35767 (0.0000)*
CU_t	1.044230	1.402326	0.744642	0.4621	-0.68441 0.0000)*

Source: Research Findings

Similarly, the result showed a positive association between FDI and GCF. As indicated, a 1% rise in FDI is associated with about 0.198% rise in GCF. This result is statistically significant at the 5% level. The error correction term (ECT) is negative and statistically significant, indicating a strong adjustment mechanism towards long-run equilibrium, deviations from the long-run equilibrium are corrected at a rate of approximately 35.7% per period.

The result of the ARDL (ECM) analysis FDI coefficient is positive but not statistically significant. This is a pointer to the fact that, within this model, changes in FDI do not have a significant direct impact on capacity utilization. This may be due to some inherent inefficiencies in managing the gains of FDI to influence manufacturing capacity utilization. Although, the positivity is in line with apriori expectation. The error correction term (ECT) is negative and statistically significant, indicating that deviations from the long-run equilibrium are corrected relatively quickly. This signifies a strong adjustment mechanism back to equilibrium in the long run.

4.3. Policy Implication of Findings

The estimated result show that there is a positive association between FDI/ GDP, FDI/ GCF and FDI/ CU in Nigeria in the period of study. The relationship for FDI/ GDP and FDI/ GCF are statistically significant at the 5% level, thus, implying that the positive association is reliable for policy. The more the increase in FDI, expectedly, the more will be the increase in GDP and Gross Capital Formation in the short run. However, the result is not significant for FDI/CU suggesting that we cannot confidently rely on the positivity within this model. Although, there is also evidence of return to long run equilibrium as observed in the error correction terms which were rightly signed and statistically significant in the three models.

5. CONCLUSION AND POLICY RECOMMENDATIONS

The regression analysis indicated that FDI has a statistically significant positive impact on economic growth and Gross Capital Formation in Nigeria in the periods studied. This suggest that increased FDI inflow contributes to enhancing the country's economic performance. The statistical significance of the p-values underlies the reliability of this positive relationship in confirming the critical role of FDI in driving economic growth and capita; formation in the period.

However while FDI also impacts CU positively, the lack of statistical significance in this relationship implies that the effect may not be consistent. This may mean that other factors like domestic investment or structural issues within the economy may be influencing CU stronger than FDI only. The findings which was in line with the submission of Amako et. al., (2023), highlights the importance of creating favorable environment for FDI to stimulate economic growth and GCF, while also addressing the underlying factor that affect CU so as to maximize the benefit of FDI in Nigeria.

Government policies that attract and retain FDI can significantly enhance both GDP and GCF growth. Enhancing capacity utilization should also be a priority, as it significantly contributes to growth of GDP and GCF. This can be achieved through better infrastructure, streamlined processes, and technological advancements.

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APPENDIX

Table A4.1. Unit Root Test Results

COEFFICIENT	*UNIT ROOT AT LEVELS*		*UNIT ROOT AT 1st DIFFERENCE*		*DECISION*
	COEFFICIENT	**P-VALUE**	**COEFFICIENT**	**P-VALUE**	
LnGDP	-0.008692	0.4818	-0.619531	0.0005	**I(1)**
LnFDI	-0.439239	0.0023*	-1.385630	0.0000**	**I(0)**
LnGCF	-0.160357	0.0708	-2.182319	0.0000**	**I(1)**
CU	-0.278305	0.0240*	-1.384575	0.0000**	**I(0)**

NB: * denotes significance @ 5% and ** denotes significance @ 1% levels
Source: Computed by Author

Table A4.2. Unrestricted Cointegration Rank Test (Trace) Results

Hypothesized No. of CE(s)	*Eigenvalue*	*Trace Statistic*	*0.05 Critical Value*	*Prob.***
None *	0.634493	68.62744	47.85613	0.0002
At most 1 *	0.477471	33.40100	29.79707	0.0184
At most 2	0.248798	10.68340	15.49471	0.2317
At most 3	0.018976	0.670553	3.841466	0.4129

Trace test indicates 2 cointegrating eqn(s) at the 0.05 level.
** denotes rejection of the hypothesis at the 0.05 level*
Source: Computed by Author

Table A4.3. Bounds Test Result (Dependent variable LnGDP)

F-BOUNDS TEST			**NULL HYPOTHESIS: NO LEVELS RELATIONSHIP**	
TEST STATISTIC	Value	Signif.	I(0)	I(1)

			Asymptotic: n=1000	
F-STATISTIC	3.774342	10%	2.37	3.2
K	3	5%	2.79	3.67
		2.5%	3.15	4.08
		1%	3.65	4.66

Source: Computed by Author

Table A4.4. ARDL Bounds Test (Dependent variable LnGCF)

F-BOUNDS TEST		**NULL HYPOTHESIS: NO LEVELS RELATIONSHIP**		
TEST STATISTIC	Value	Signif.	I(0)	I(1)
			Asymptotic: n=1000	
F-STATISTIC	8.044192	10%	2.37	3.2
K	3	5%	2.79	3.67
		2.5%	3.15	4.08
		1%	3.65	4.66

Sources: Research Findings

Table A4.5. ARDL Bounds Test (Dependent variable CU)

F-BOUNDS TEST		**NULL HYPOTHESIS: NO LEVELS RELATIONSHIP**		
TEST STATISTIC	Value	Signif.	I(0)	I(1)
			Asymptotic: n=1000	
F-STATISTIC	4.471050	10%	2.37	3.2
K	3	5%	2.79	3.67
		2.5%	3.15	4.08
		1%	3.65	4.66

Sources: Research Findings

Table A4.6. Impact of FDI on Economic Growth (GDP)

Regressors	***Coefficients***	***Standard errors***	***t-stat***	***Prob***

$LnGDP_{t-1}$	0.218279	0.171615	1.34458	0.1813
$LnFDI_t$	2.603904	1.085493	2.400112	0.0236**
$LnGCF_t$	1.358784	6.714878	0.202214	0.8413
CU	0.000743	0.065728	2.584386	0.0173**
C	0.438441	0.026416	16.59758	0.0000**
R^2	0.62			
Adjusted R^2	0.47			
F-stat	8.25 (0.023)			
ECT_{t-1}	-0.670121 (0.0000)*	t-stat 5.736568		

Source: Computed by Author

Table A4.7. Impact of FDI on Gross Capital Formation (GCF)

Regressors	*Coefficients*	*Standard errors*	*t-stat*	*Prob*
$LnGCF_{t-1}$	0.682344	0.002770	2.078581	0.0413
$LnFDI_t$	0.198195	0.020449	2.775340	0.0437
$LnGDP_t$	0.405571	0.038700	10.47975	0.0000
CU_t	0.007165	0.002389	2.999229	0.0051
C	4.944013	0.350923	14.08860	0.0000
R^2	0.82			
Adjusted R^2	0.79			
F-stat	35.2 (0.0000)			
ECT_{t-1}	-0.357667 (0.0000)*	t-stat 5.736568	D-W stat 2.051113	

Sources: Research Findings

Table A4.8. Impact of FDI on Capacity Utilization (CU)

Regressors	*Coefficients*	*Standard errors*	*t-stat*	*Prob*
CU_{t-1}	0.315586	0.172109	1.833643	0.0763*
$LnFDI_t$	1.044230	1.402326	0.744642	0.4621
$LnGDP_t$	14.89650	4.685683	3.179152	0.0033*
$LnGCF_t$	-23.76233	10.40319	-2.284138	0.0294*
C	78.54183	59.06049	1.329854	0.1933
R^2	0.65			
Adjusted R^2	0.60			
F-stat	45.2 (0.0001)			
ECT_{t-1}	-0.684414 (0.0000)*	t-stat 5.736568	D-W stat 2.183385	

Sources: Research Findings