

# **IMPACT OF FOREIGN DIRECT INVESTMENT ON EXPORT SECTOR IN NIGERIA (1981-2018)**

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## **ABSTRACT**

*The objective of the study is to examine the impact of FDI on exports in Nigeria for the period 1981-2018. Specifically, two linear equations were formulated to trace the impact of FDI on oil sector and non-oil sector. The explanatory variables in the study were exchange rate, GDP, degree of openness, FDI, and inflation. The ADF technique was used to test for the stationarity of the time series data. The results of the Error Correction models reveal that there is a positive and significant ( $P(FDI) = 0.000$ ) relationship between FDI and oil export in Nigeria. One per cent increase in FDI leads to 0.47 per cent increase in oil export over the period under study. There is a positive and significant ( $P(FDI) = 0.005$ ) relationship between FDI and non-oil export in Nigeria. One per cent increase in FDI leads to 0.31 per cent increase in non-oil export over the period under study. The impact of FDI on the oil export is higher than the non-oil sector by 0.16 per cent. The study recommends for more aggressive policies to attract FDI in the oil sector to be pursued by the government. Obstacles to doing business in Nigeria should be removed.*

**KEYWORDS:** *Foreign direct investment, oil export, non-oil export*

## **INTRODUCTION**

Acquisition of human, physical, and financial capitals are the major determinants of economic growth. The unavailability of these resources constitutes valid rationale on why economic growth and development lags backward in many countries (Onyeagu & Okeiyika, 2013). Foreign Direct Investment can serve as a catalyst for growth through increasing the opportunity for developing a country's inclusion into world financial and capital flows, expanding employment and export bases, generating technological capability-building and efficiency spillovers to domestic firms, and in addition, establishing investment arrangements that will increase the ability and capacity of host economies for economic growth (Olayiwola & Okodua, 2007). According to

Alfaro, Chanda, Kalemli-Ozcan & Sayek (2006), the merits of FDI includes providing direct capital financing which plays a vital role in bringing modernity in the pursuit of economic development.

The Federal Government of Nigeria adopted several policies, strategies and innovations to open up the economy, improve infrastructural facilities, provide tax inducement like tax holidays for infant industries, reduction in import tariff, etc. to improve the inflow of foreign direct investment into the Nigerian economy. These efforts were meant to increase output in various sectors including agriculture, non-oil sector, and manufacturing. The level of FDI inflows into Nigeria is not encouraging when we compare the inflows with the

inflows that goes into the oil sector. The real sector which provides goods for export has the potency of providing the required relief for the economy, especially in this present period of oil glut and dwindling revenue from crude oil receipts. There is the need for increased FDI inflows into the real sectors that produces goods for export.

In literature, many previous studies on FDI like Adeleke, Olowe & Fasesin (2014) have concentrated mainly on its impact on overall growth. Nigeria is a country blessed with not just crude oil sector, but the export sector and its components have not been given due consideration in research. It is noteworthy however, that despite the observed increasing inflows of FDI, there has not been any satisfactory attempt to assess its contribution to sectoral growth of Nigeria's export to the outside world, hence the need for this study. In addition, there is need to compare the differences in the impact of FDI on these different sub-sectors. This study is a sub-sectoral approach designed to trace the impact of Foreign Direct Investment on oil exports and non-oil exports in Nigeria. This research work will aid in understanding the impact of FDI on exports in Nigeria and also the nature of relationship between these FDI and various categories of export

## LITERATURE REVIEW

Ricardo, Hwang & Rodrick (2005) are of the opinion that FDI points the way forward for less developed nations to improve and increase the quality of their domestic products which they export and sell. Many developing countries pursue FDI as a tool for export promotion, rather than production for the domestic economy. Typically, foreign investors build plants in nations where they can produce goods for export at lower costs.

Export-led-growth (ELG) hypothesis is the main theoretical underpinning which explains most empirical studies on export and investment. The theory states that the growth of exports has a favourable impact on economic growth. The liberalization process in developing countries has increased not only trade but also FDI flows. Thus, FDI has also become an important link in the export-growth relationship (Olayiwola & Okodua, 2007).

Dunning, (1993) introduced the Ownership, Localization and Internalization (OLI) theory. This paradigm has become the framework in many studies (Adejumo, 2013; Gunther, 2002). This theory (OLI paradigm) explains the process of FDI. It explains FDI by merging three isolated theories of international production, the monopolistic advantage, the location advantage and internalization theories, in a single approach called an "eclectic theory". This idea is simple but astounding. It rests on a tripod set of conditions that permits Foreign Direct Investment in an economy. Its postulation is that the extent, geography and industrial composition of foreign production embarked on by MNCs is a function of collaboration among a set of three sub-paradigms. Each of these strands has unique implication for spillovers in the host economy (Adejumo, 2013).

Some empirical studies on the relationship and impact of FDI on export exist in literature. Bakare-Aremu & Bashorun (2014) examine the policy direction of foreign direct investment in Nigeria, using Error Correction Modeling (ECM). The study finds that foreign direct investment spurs both exportation and importation of goods and services, which implies that it favours export promotion policy strategy.

Enimola (2011) investigates the connection between Foreign Direct Investment and Export Nigeria for the period

1970 to 2008. Evidence of one cointegrating equation was found. The Granger causality results suggest unidirectional causality running from foreign direct investment to export; real exchange rate to export; trade balance to export and bidirectional causality between external market indicator to export. Udoh (2014) investigates the impacts of Foreign Direct Investment (FDI) and Oil export on Economic growth in Nigeria from 1970 -2011. Also, the Ordinary Least Square (OLS) t-statistic shows that foreign direct investment is not statistically significant in explaining the level of economic activities as a result of non-conducive environment for investment as well as oil theft. The negative value of the t-statistic on oil export could be explained by the fact that part of the oil exported are for refining abroad and later imported for domestic consumption.

The study by Mitic and Ivi (2016) examine the effects of foreign direct investment (FDI) on the export of goods and high-tech exports in transition economies, based on correlation analysis and including time-lag of one year. The result of the analysis which covers 11 transition countries indicate a significant level of correlation between FDI and export of goods, with the stronger correlation in the case of high-tech exports. Sultanuzzaman, Fan, Akash, Wang & Shakij (2018) examine the long-run and short-run relationship between Foreign Direct Investment (FDI) inflows, exports, and economic growth in Sri Lanka over 1980–2016. The result of the Autoregressive Distributed Lag (ARDL) bounds testing approach indicates that If FDI inflows increase, GDP growth will increase. But for exports, it has a negative and significant relationship with economic growth in the long-run.

Olayiwola & Okodua (2014) examine the applicability of the export-led growth (ELG) hypothesis using empirical evidence from Nigeria using a causality analysis. Empirical evidence from available data failed to support the export-led growth hypothesis in Nigeria. Etale and Etale (2016) examine the relationship between exports, foreign direct investment and economic growth in Malaysia from year 1980 – 2013. The results obtained show that there is a unidirectional long run relationship from Exports to FDI Inflows and Exports to GDP per capita.

In libraries and the internet, studies on FDI were mainly situated in overall economic growth. Studies on the impact of FDI on export sector are very few. One yawning gap from the previous studies is the absence of a study which examines the impact of FDI on export sub-sectors: non-oil exports and oil exports. In addition, unlike previous studies, the present study incorporates the effect of economic reforms in the form of Structural adjustment programme in Nigeria, in order to accommodate the peculiarities of Nigeria's economy. This is the area which is explored in the present study.

## METHODOLOGY

The study adopted the *Ex Post Facto* research design. Time series data required for the data analysis will be obtained from the Central Bank of Nigeria Statistical Bulletin and National Bureau for Statistics. The researcher employed the use of Eviews 9.0 Econometric software for the data analysis. The Error Correction model is employed to estimate the parameters of the linear model.

## Model Specification

This study adopts a similar model of exports employed by Enimola (2011) for Nigeria. In this model, we include a proxy for the supply capacity of the recipient country that

positively affects export supply capacity. In addition, to test the impact of FDI on exports, we use a model which takes into consideration some trade reform indicators. Accordingly, we employ the following model specification: Export (*OILEX*,

*NOILEX*.) is a function of Real exchange rate (*EXCH*), potential output (*GDP*), trade liberalization (*DOP*), foreign direct investment (*FDI*), Inflation rate (*INF*) and dummy variable for structural changes. Stochastically, it is written as:

$$OILEX_t = \alpha_0 + \alpha_1 EXCH_t + \alpha_2 GDP_t + \alpha_3 DOP_t + \alpha_4 FDI_t + \alpha_5 INF_t + \alpha_6 DO1_t + \mu_t \quad (3.3)$$

$$NOILEX_t = \beta_0 + \beta_1 EXCH_t + \beta_2 GDP_t + \beta_3 DOP_t + \beta_4 FDI_t + \beta_5 INF_t + \beta_6 DO1_t + Vt \quad (3.4)$$

Where; the dependent variables are: *OILEX* = Oil Exports, *NOILEX* = Non-oil export. The independent variables: *EXCH* = Real Effective Exchange Rate (Influence of relative price), *GDP* = Gross Domestic Product (National output, proxy for the supply capacity of the economy), *FDI* = Foreign Direct Investment (FDI/GDP), *INF* = Inflation rate (economy-wide variable), *DOP* = Degree of openness (ratio of import plus export to GDP), *DO1* = dummy variable for structural break. D = 1 for deregulation, D = 0 regulation, and  $\alpha_i$  and  $\beta_i$  are parametric coefficients.

The preliminary test began with the test for stationarity. Unit root tests are important in examining the stationarity of a time series because a non-stationary regressor invalidates many standard empirical results and thus requires special treatment. The variables of this study were subjected to stationary test and made stationary using the Augmented Dickey Fuller (ADF) test because it eliminates the problem of autocorrelation by including enough terms so that the error term is serially uncorrelated. (Dickey and Fuller 1979, 1981) The equation estimated for the ADF test is as follows:

$$\Delta X_t = \alpha_0 + \beta_1 X_{t-1} + \delta t + \sum_{i=1}^m \theta_i \Delta X_{t-i} + \epsilon_t \dots \dots \dots \quad 3.5$$

Where  $\Delta$  is the first difference operator, *t* is the time trend,  $\epsilon$  is the stationary random error, and *m* is the maximum lag length. *X* = variable,  $\alpha_0$  = intercept,  $\delta$  and  $\theta$  are coefficients. The null hypothesis is that the series contains a unit root which implies that  $\beta = 0$ . The null hypothesis is rejected if  $\beta$  is negative and statistically significant.

run relationship among the variables. The first step involves running the basic OLS regression. The second step is to test the OLS residual for unit root at levels, no intercept. The null hypothesis of no co-integration is rejected if it is found that the regression residuals are stationary at level.

**Error Correction Model**

The second preliminary test is the cointegration test. Engle-Granger two step procedure is used to establish a long

To contribute to existing literature, the study adopted the Error Correction Mechanism (ECM) to examine the impact of FDI on export sector in Nigeria. The following (ECM) is estimated as:

$$\Delta OILEX_t = \alpha_0 + \alpha_1 \Delta EXCH_t + \alpha_2 \Delta GDP_t + \alpha_3 \Delta DOP_t + \alpha_4 \Delta FDI_t + \alpha_5 \Delta INF_t + \alpha_6 \Delta DO1_t + \delta ECM1(-1) + \mu_t \quad (3.6)$$

$$\Delta NOILEX_t = \alpha_0 + \alpha_1 \Delta EXCH_t + \alpha_2 \Delta GDP_t + \alpha_3 \Delta DOP_t + \alpha_4 \Delta FDI_t + \alpha_5 \Delta INF_t + \alpha_6 \Delta DO1_t + \delta ECM2(-1) + \mu_t \quad (3.7)$$

Where: ECM is the error correcting factors and  $\epsilon$  is the white noise error term. The ECM is used because it allows the estimation of both short run and long run effects of explanatory time series variables. The linkage between cointegration and ECM stems from the Granger representation theorem. According to this theorem, two or more integrated time series that are error correcting are cointegrated (Engle

and Granger 1987). Any discussion of how to statistically model integrated data of the same order must make reference to ECM. In short, the two concepts are isomorphic. That is integrated time series implies ECM estimation. This study tested the long run and short run relationship using both cointegration and ECM.

**RESULTS AND DISCUSSIONS**

The result of the Unit root test of stationarity is presented in Table 4.1 below:

**Table 4.1: Result of ADF unit root test of the variables**

Variables	At levels		At first difference		
	ADF test Statistics	5% critical Value	ADF test statistics	5% critical value	Order of integration
LOILEX	-2.943427	-1.123139	-2.945842	-6.277032	I(1)
LNOILEX	-2.943427	-0.88819	-2.945842	-7.102241	I(1)
LGDP	-2.945842	-0.027819	-2.945842	-3.396053	I(1)
LFDI	-2.943427	-1.742033	-2.945842	-8.477994	I(1)
DOP	-2.943427	0.140663	-2.945842	-4.710948	I(1)
EXCH	-2.943427	1.981317	-2.945842	-4.140229	I(1)
INF	-2.943427	-3.085393	-	-	I(0)

Source: Eviews 9 Output for the Result of ADF unit root test of the variables

Table 4.1 shows that all the variables are stationary at levels except inflation, since the absolute value of the ADF t-statistic exceeds the 5% critical value at first difference. Having

observed this, the researchers go on to test to see if a long run relationship exists among the variable, in spite of being stationary at first difference.

**Table 4.2: Summary result of Engle-Granger cointegration test**

Residual	ADF t-statistic	5% Critical Value	Order of integration	Decision
ECM 1	-5.027241	-1.956314	I(0)	Cointegration exist
ECM2	-5.659096	-1.950117	I(0)	Cointegration exist

Source: Eviews 9 Output for the Result of Cointegration tests

Table 4.2 present the results of the Engle-Granger cointegration, having ascertained that the variables are stationary at levels, no intercept (Gujarati, 2005). In other words, there is a long run relationship among the variables in the two

models. Having ascertained that cointegration exists, the study moves on to estimate the model parameters using the Error correction modelling.

**Table 4.3: Result of Parsimonious Error Correction Model I**

Dependent Variable: D(D(LOILEX))

Method: Least Squares

Date: 11/24/19 Time: 12:23

Sample (adjusted): 1983 2018

Included observations: 36 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(D(LGDP))	1.518319	1.533938	0.989818	0.3307
D(D(LFDI))	0.466731	0.086630	5.387625	0.0000
D(D(DOP))	3.976940	1.167422	3.406601	0.0020
D(D(EXCH))	0.007886	0.003416	2.308830	0.0285
D01	-0.026610	0.211268	-0.125954	0.9007
D(INF)	-0.003507	0.003658	-0.958509	0.3460
ECM2(-1)	-0.516778	0.151443	-3.412359	0.0000
C	0.016903	0.201952	0.083700	0.9339
R-squared	0.751373	Mean dependent var		0.017003
Adjusted R-squared	0.689217	S.D. dependent var		0.603016
S.E. of regression	0.336169	Akaike info criterion		0.850724
Sum squared resid	3.164268	Schwarz criterion		1.202618
Log likelihood	-7.313039	Hannan-Quinn criter.		0.973545
F-statistic	12.08839	Durbin-Watson stat		2.035337
Prob(F-statistic)	0.000001			

Source: Authors Eviews 9 computations

Table 4.3 presents the result of the Oil Export-FDI equation. The result shows that FDI, degree of openness and exchange rate (with *pvalues* = 0.000, 0.0020, 0.0285) are statistically significant at 5 per cent, while GDP, dummy variable and inflation (with *pvalues* = 0.3307, 0.9007, 0.3460) are not.

Individually, the result shows that gross domestic product has a positive relationship with oil export in Nigeria over the period under study. As GDP increases by one per cent in Nigeria, oil export increase by 1.51 per cent. However, the t-statistic is not statistically insignificant at 5 per cent. The relationship between Foreign direct investment and oil export is positive. One per cent increase in FDI leads to 0.47 per cent increase in oil export over the period under study. The probability of the t-statistic indicates that this outcome is statistically significant at 5 per cent. The higher the degree of openness, the higher the increase in oil export. One per cent increase in openness leads to a 3.97 per cent increase in oil export over the period under study. With the probability value of the t-statistic at 0.0020, this variable is statistically significant at 5 per cent. The relationship between exchange rate and oil export is positive. The higher the exchange rate of Naira to the dollar, the higher the increase in non-oil export

over the period under study. This means that exchange rate deregulation policy of the government in Nigeria have been favourable to the economy through the increase in oil export. The outcome in this study is also statistically significant at 5 per cent. The relationship between the dummy variable (SAP) and oil export is negative and statistically insignificant. One-unit improvement in the application of Structural Adjustment leads to 0.027 per cent decrease in oil export over the period under study. As expected by economic theory, the relationship between inflation and oil export is negative. This outcome is statistically insignificant at 5 per cent. A unit increase in inflation leads to -0.004 per cent decrease in oil export. Lastly, the error correction term which measures the speed of adjustment of the short-run model toward long-run equilibrium was found to be negative and statistically significant ( $P=0.000$ ). This in fact, is in line with theoretical postulations. The result therefore shows that in one year about 52 percent of the fluctuations in the short-run would be corrected towards long-run equilibrium. With this, it would take the system one year for the model to fully adjust to long run equilibrium.

**Table 4.4: Result of Parsimonious Error Correction Model II**

Dependent Variable: D(D(LNOILEX))

Method: Least Squares

Date: 11/24/19 Time: 12:26

Sample (adjusted): 1983 2018

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(D(LGDP))	2.176166	1.675447	1.298857	0.2046
D(D(LFDI))	0.309382	0.078348	3.948814	0.0005
D(D(DOP))	3.537441	1.196482	2.956535	0.0063
D(D(EXCH))	0.006275	0.003682	1.704381	0.0994
DO1	-0.100611	0.232124	-0.433437	0.6680
D(INF)	-0.008279	0.003999	-2.070424	0.0477
ECM2(-1)	-0.598863	0.196286	-3.050971	0.0010
C	0.101203	0.221737	0.456412	0.6516
R-squared	0.764309	Mean dependent var		0.022537
Adjusted R-squared	0.705386	S.D. dependent var		0.676895
S.E. of regression	0.367407	Akaike info criterion		1.028439
Sum squared resid	3.779668	Schwarz criterion		1.380332
Log likelihood	-10.51190	Hannan-Quinn criter.		1.151259
F-statistic	12.97136	Durbin-Watson stat		2.050421
Prob(F-statistic)	0.000000			

Source: Authors Eviews 9 computations

Table 4.4 presents the result of the Non-oil Export-FDI equation. The result shows that FDI, degree of openness and inflation (with *pvalues* = 0.005, 0.0063, 0.0477) are statistically significant at 5 per cent, while GDP, exchange rate and dummy variable (with *pvalues* = 0.2046, 0.0994, 0.6680) are not. Individually, the result shows that gross domestic product has a positive relationship with non-oil export in Nigeria over the period under study. As GDP increases by one per cent in Nigeria, non-oil export increase by 2.18 per cent. However, the t-statistic is not statistically insignificant at 5 per cent. The relationship between Foreign direct investment and non-oil export is positive. one per cent increase in FDI leads to 0.31 per cent increase in non-oil export over the period under study. The probability of the t-statistic indicates that this outcome is statistically significant at 5 per cent. The higher the degree of openness, the higher the increase in non-oil export. One per cent increase in openness leads to a 3.54 per cent increase in non-oil export over the period under study. With the probability value of the t-statistic at 0.0063, this variable is statistically significant at 5 per cent. The relationship between exchange rate and non-oil export is positive. The higher the exchange rate of Naira to the dollar, the higher the increase in non-oil export over the period under study. One per cent increase in exchange rate leads to 0.0063 per cent increase in non-oil export. This means that exchange rate deregulation policy of the government in Nigeria have been favourable to the economy through the increase in oil export. The outcome in this study is also statistically significant at 5 per cent.

The relationship between the dummy variable (SAP) and non-oil export is negative and statistically insignificant. One-unit improvement in the application of Structural Adjustment leads to 0.10 per cent decrease in non-oil export over the period under study. As expected by economic theory, the relationship between inflation and non-oil export is negative. This outcome is statistically insignificant at 5 per

cent. A unit increase in inflation leads to -0.0083 per cent decrease in non-oil export. Lastly, the error correction term which measures the speed of adjustment of the short-run model toward long-run equilibrium was found to be negative and statistically significant ( $P=0.0031$ ). This in fact, is in line with theoretical postulations. The result therefore shows that in one year about 60 percent of the fluctuations in the short-run would be corrected towards long-run equilibrium. With this, it would take the system one year for the model to fully adjust to long run equilibrium.

## CONCLUSION AND RECOMMENDATIONS

No country on earth is endowed with every resource (human and non-human) needed by her citizens. The need for openness of economies began with the idea of international trade raised by Adam Smith in 1776. Both developed and developing countries need FDI for growth and development. The need for FDI cannot be over emphasized. The internet is replete with studies on Foreign direct investment and economic growth. The results of the Error Correction models reveal that there is a positive and significant relationship between FDI and oil export in Nigeria. There is a positive and significant relationship between FDI and non-oil export in Nigeria. The impact of FDI on the oil export is higher than the non-oil sector by 0.16 per cent.

The study recommends for more aggressive policies to attract FDI in the oil sector should be pursued by the government. Government should ensure that more attractive policies are put in place to lure foreign investors to the oil sector in Nigeria. Obstacles to doing business in Nigeria should be removed. FDI in the non-oil sector, especially agriculture, manufacturing, tourism and Information and Communication technology should be encouraged and supported by the government.

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## APPENDIX

**Table 4.2: ENGLE-GRANGER equation for oil Export-FDI equation**

Null Hypothesis: ECM1 has a unit root

Exogenous: None

Lag Length: 1 (Automatic - based on SIC, maxlag=9)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-5.027241	0.0000
Test critical values:		
1% level	-2.630762	
5% level	-1.950394	
10% level	-1.611202	

Source: Authors Eviews 9 computations

**Table 4.3: ENGLE-GRANGER equation for Non-oil Export-FDI equation**

Null Hypothesis: ECM2 has a unit root

Exogenous: None

Lag Length: 0 (Automatic - based on SIC, maxlag=9)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-5.659096	0.0000
Test critical values:		
1% level	-2.628961	
5% level	-1.950117	
10% level	-1.611339	

Source: Authors Eviews 9 computations