

# Impact of Foreign Direct Investments on Domestic Investments in Nigeria

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**How to cite this paper:** Anionwu, Carol "Impact of Foreign Direct Investments on Domestic Investments in Nigeria"

Published in International Journal of Trend in Scientific Research and Development (ijtsrd), ISSN: 2456-6470, Volume-3 | Issue-5, August 2019,



IJTSRD26725

pp.1403-1410,

<https://doi.org/10.31142/ijtsrd26725>

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## INTRODUCTION

Nigeria and other developing economies have touted the attracting of Foreign Direct Investment (FDI) as a strategy for sustainable economic growth and development. This is because of the perceived important contributions and potentials of Foreign Direct Investment (FDI) as an amalgamation of capital, technology, marketing and management which arguably have been found lacking or in short supply in most developing economies in Sub-Saharan Africa. Extant literature posits that the effort by several African countries to improve their business climate stems from the desire to attract FDI. In fact, one of the pillars on which the New Partnership for Africa's Development (NEPAD) was launched was to increase available capital to US\$64 billion through a combination of reforms, resource mobilization and a conducive environment for FDI (Ayanwale, 2007; Funke & Nsouli, 2003). Foreign Direct Investment (FDI) has become the most convenient alternative to capital loans, the source of capital inflow, and catalyst for economic growth without bearing risks associated to the debt (Yahia, Haiyun, Khan, Shah & Islam, 2018). It has emerged as the most important source of external resource flows to developing countries over the years and has become a significant part of capital formation in these countries. The role of Foreign Direct Investment (FDI) has been widely recognized as a growth-enhancing factor in the developing countries (Ugwuegbe, Okore, & Onoh, 2013). Some of the benefits of FDI inflows to the host economy include: increase in employment, augmenting the

## ABSTRACT

This study examines the impact of foreign direct investments on domestic investments in Nigeria. Specifically, the study seeks to ascertain the effect of foreign direct investment, per capita income, consumption expenditure, savings and debt burden on domestic investments in Nigeria using an inferential statistic like the regression analysis after determining stationarity of the variables using the ADF Statistic, as well as the cointegration of variables using the Johansen approach. Findings revealed that foreign direct investment, per capita income, consumption expenditure, savings, interest rate and debt burden are statistically significant in explaining domestic investment in Nigeria. The F-test conducted in the study shows that the model has a goodness of fit and is statistically different from zero. In other words, there is a significant impact between the dependent and independent variables in the model. The study therefore recommends that: There is need for government to formulate investment policies that will be favourable to local investors in order to complement the inflow of investment from abroad. Government should provide adequate infrastructure and policy framework that will be conducive for doing business in Nigeria, so as to attract the inflow of FDI. Policies that would improve per capita income of Nigeria should be pursued as this will stabilize and accelerate the rate of investment in Nigeria.

**KEYWORDS:** Foreign Direct Investments, Domestic Investments, Per capita income, Consumption expenditure, Savings, Debt burden

productivity, boost in exports and amplified pace of transfer of technology. It also facilitates the utilization and exploitation of local raw materials, introduces modern techniques of management and marketing, eases the access to new technologies and foreign inflows that can be used for financing current account deficits (Ugwuegbe, Okore, & Onoh, 2013; Falki, 2009). Opposed to external debt, inflows form FDI do not generate repayment of principal or interests. It increases the stock of human capital via on-the-job training.

However, despite the contributions, benefits and potential roles of Foreign Direct Investment (FDI) to the host economy, it has been regarded as a threat to Domestic Investments (DI) of the host economy, even when Domestic Investment (DI) seems not to be enough to stimulate economic growth thus necessitating the attracting of Foreign Direct Investment (FDI). As cited by Mohamed, Singh and Liew (2013), Foreign Direct Investment (FDI) may harm Domestic Investment (DI) and the growth of the host economy if foreign firms will compete with local firms in the use of domestic resources and reduce investment opportunities for local investors (Jansen 1995; Agosin & Mayer 2000). Adegbite and Owulabi (2007) argued that although foreign direct investment (FDI) is beneficial to host countries by speeding up the process of economic growth and development, its multiplier effect is greater. On the contrary, developing countries should depend greatly on

domestic investment rather than foreign direct investment (FDI). Mohamed, Singh and Liew (2013) posits that there is a negative impact of FDI to recipient's economy because it crowds-out/substitutes Domestic Investment (DI). It is therefore important that Foreign Direct Investment (FDI) is not attracted at the detriment of Domestic Investment (DI) this is because in times of instability (political or otherwise), Foreign Direct Investment (FDI) may be withdrawn by the investors and that will ultimately affect the economy of the host country. In Nigeria for instance, between late 2014 and 2018, a lot of Foreign Direct Investment (FDI) were withdrawn and companies relocated to nearby countries like Ghana and Cameroon. The effect was seen in the unprecedented rise in the level of poverty and unemployment. Therefore, protecting Domestic Investment (DI) from Foreign Direct Investment (FDI) inflows is paramount. This is because domestic investment through the capital formation is not just paramount but serves as a prerequisite for the geometric acceleration of growth and development of every economy as it provides domestic resources that can be used to fund the investment effort of the economy when there is a shortfall in the supply of Foreign Direct Investment (FDI). Economies within the Sub-Saharan Africa should be skeptical about their crave for attracting Foreign Direct Investment (FDI). They should sought Foreign Direct Investments (FDI) that compliments and crowds-in Domestic Investments (DI) and not Foreign Direct Investments (FDI) that substitutes and crowds-out Domestic Investments (DI). If the total capital formation or if the increase in total investment becomes smaller than the increase in FDI, "crowding out" occurs (Agosin & Machado, 2005). Crowding in of domestic investment as a result of receiving FDI generally occurs when foreign investment generates spillovers to the domestic economy. If developmental policies are pursued in this direction it will ensure that FDI only helps in bridging the capital shortage gap and complement domestic investment especially when it flows to high risk areas of new firms where domestic resources are limited (Noozoye, 1979).

### Statement of the Problem

This study was necessitated by the perceived growing concern and public outcry about the rising mortality rate of private domestic investments in Nigeria and the attendant rising poverty and unemployment rate. Foreign Direct Investments (FDI) and Domestic Investments (DI) are both business and economic development strategy. However, it has been observed that the inflows of Foreign Direct Investments (FDI) into the economy over the years gradually killed a number of private Domestic Investments (DI), but the presence of the Foreign Direct Investments (FDI) that substituted the Domestic Investments (DI) made the collapse of the private investments unnoticed. Furthermore, the political instability and security challenges that have persisted in the country for the past five years necessitated the withdrawal of Foreign Direct Investments (FDI) by investor thus leaving the strongest economy in Africa to become a volatile one that gradually went into recession. Although statistics shows that the country is currently out of recession but its impact is still felt by individuals and businesses. Analysis has shown that mixed emphasis has been placed on foreign direct investment (FDI) as a strategic tool for economic sustainability, particularly in Nigeria and by extension the developing countries of Africa. This suggest the need for empirical investigation to ascertain the impact

of Foreign Direct Investments (FDI) on Domestic Investments (DI) in Nigeria.

### Objectives of the Study

The main objective of the study is to examine the impact of Foreign Direct Investments (FDI) on Domestic Investments (DI) in Nigeria. Specifically, the study intends to ascertain the effect of Foreign direct investment, Per capita income, Consumption expenditure, Savings and Debt burden on Domestic investment in Nigeria.

### RELATED EMPIRICAL REVIEW

Yahia, Haiyun, Khan, Shah and Islam (2018) applied the autoregressive distributed-lag bounds test to cointegration and Granger causality to examine the impact of foreign direct investment (FDI) inflows on domestic investment of Sudan over the period 1976-2016. Empirical results show a crowd out effect of FDI on Sudan's domestic investment, and the results confirm the cointegration relationships. Economic growth, exchange rate, macroeconomic stability and natural resource rent have shown short and long-run significant association with domestic investment, whereas, FDI appears as a long-term determinant. Moreover, the error correction model reveals that system corrects previous period disequilibrium at an annual rate of 35%. The Granger Causality results conclude unidirectional causal flows from FDI, exchange rate, macroeconomic stability, natural resource rent, and trade openness to domestic investment. Abubakar and Danladi (2018) examined the impact of foreign direct investment (FDI) on stock market development in Nigeria using annual data from 1981 to 2016. The variables such as stock market development proxied by market capitalization, foreign direct investment, exchange rate, inflation rate and gross domestic savings were used in the study. The study found that foreign direct investment has positive and statistically insignificant effect on stock market development. Exchange rate and gross domestic savings exert positive and statistically significant impact on stock market development, while inflation rate has insignificant negative influence on stock market development in Nigeria throughout the study period. Belloumi and Alshehry (2018) examined the impacts of domestic and foreign direct investments on economic growth in Saudi Arabia over the period 1970-2015 by using the autoregressive distributed lag (ARDL) bounds testing to cointegration approach. The fully modified ordinary least squares (FMOLS), dynamic ordinary least squares (DOLS), and the canonical cointegrating regression (CCR) are employed to check the robustness of the ARDL long run estimates. The results show that in the long term there are negative bidirectional causality between non-oil GDP growth and FDI, negative bidirectional causality between non-oil GDP growth and domestic capital investment, and bidirectional causality between FDI and domestic capital investment. FDI affects negatively domestic capital investment in the short run, whereas domestic capital investment affects negatively FDI in the long run. Both finance development and trade openness affect positively non-oil GDP growth, FDI inflows and domestic capital investment in the long run.

Oyedokun and Ajose (2018) investigated the impact of domestic investment and economic growth in Nigeria using Co-integration test in order to determine the long run relationship between domestic investment, and economic

growth in Nigeria for the period of 1980-2016. The Granger causality test was also used to determine the causality between domestic investment, and economic growth in Nigeria for the period of 1980-2016. The results also showed long run significant relationship exists between the variable examined and domestic investment. Granger cause economic growth in Nigeria within the period under study. The study also found that domestic investment positively influences real gross domestic product. Ovat and Amba (2018). Foreign direct investment and economic growth in Nigeria using the traditional neoclassical Solow model of the form of Cobb-Douglas production function. Findings revealed that Nigeria has fared very well in the nexus between FDI and economic growth, as the former impacted positively and significantly on the latter in Nigeria, within the period under review. Domestic investment and stock of human capital were also found to have contributed significantly to growth in Nigeria. However, labour force and openness of the economy impacted insignificantly to growth. Rahmon (2017) carried out an empirical investigation of capital flight and domestic investment in Nigeria using secondary time series data covering the period 1980 and 2015. Augmented Dickey Fuller test, Phillip-Perron test, Johansen Cointegration test and Ordinary Least Square estimating technique (OLS) via Microsoft 7.1 econometric software were employed to carry out a detailed analysis of the endogenous and exogenous variables of the model which include Gross Domestic Investment (GDINV), Capital Flight (CAPF), Exchange Rate (EXGR) and Inflation Rate (INFR). The overall results show that capital flight has a statistically significant positive relationship with gross domestic investment in Nigeria contrary to a priori theoretical expectation. The result further revealed that a one naira increase in capital flight would bring about 13.74 units rise in gross domestic investment. The results also show that there exists a statistically significant positive relationship between exchange rate and gross domestic investment. A one naira increase in exchange rate would bring about 4.84 units rise in gross domestic investment.

Gungor and Ringim (2017) investigated the Linkage between foreign direct investment, domestic investment and economic growth: Evidence from Nigeria using annual time series data for the period of 1980-2015. The study employs Johansen multivariate cointegration test and vector error correction model (VECM) as estimation techniques. The Johansen cointegration result of the study reveals that, FDI DI and economic growth have a long-run equilibrium relationship. According to the VECM result and the speed of adjustment of the variables towards their long-run equilibrium path was 52.55%. Furthermore, Granger causality test reveals a uni-directional causality running from FDI to economic growth that is, FDI is an important predictor of economic growth. This goes to validate the FDI lead growth hypothesis for Nigeria. Obafemi, Oburota and Aмоke (2016) examined financial deepening and domestic investment in Nigeria using Secondary data spanning from 1970 to 2013. The study employed Error Correction model Findings revealed a unidirectional causality, running from financial deepening to investment. It also found that the financial deepening has a statistically significant impact on domestic investment. Iya and Aminu (2015) examined the impact of both foreign direct investment and domestic investment on economic growth in Nigeria using a secondary time series data covering a period 1992-2013. Their study

modeled macroeconomic data like real gross domestic product (RGDP), foreign direct investment (FDI) domestic investment, total foreign exchange rates, and trade liberalization using regression technique of the Ordinary Least Square (OLS) method and the Error Correction Method (ECM). The results of the OLS revealed that foreign direct investment (FDI), domestic investment (DIN), total foreign exchange rate (TEX) and trade liberalization (TP) impacted positively on economic growth (RGDP) in the Nigeria. Unit root results suggest that all the variables in the model are stationary at first difference  $d(1)$ . The ECM result revealed the existence of long run relationship between economic growth (INRGDP), foreign direct investment (FDI), domestic investment (DIN), total foreign exchange rate (TEX) and trade liberalization (TP). The speed of adjustment was found to be at least two years for the long run equilibrium. This paper found that, there is no serial correlation among the error values. The result further revealed the absence of heteroscedasticity in the error term. This makes it possible for the results of this paper to be used for policy purposes. This paper found a positive and significant relationship between economic growth, domestic investment and total foreign exchange rates in Nigeria, but the paper found positive and insignificant relationship between foreign direct investment and trade liberalization.

Ugwuegbe, Okore and Onoh (2013) investigated the empirical relationship between Foreign Direct Investment and economic growth in Nigeria using time series data like gross fixed capital formation, interest rate and exchange rate covering a period of 1981-2009. The data was analyzed with regression model of the Ordinary Least Square method to ascertain the relationship between FDI and economic growth in Nigeria. The result of the OLS techniques indicates that FDI has a positive and insignificant impact on the growth of Nigerian economy for the period under study. GFCF which was used as a proxy for domestic investment has a positive and significant impact on economic growth. Interest rate was found to be positive and insignificant while exchange rate positively and significantly affects the growth of Nigeria economy. using vector error correction (VECM) modeling Mohamed, Singh and Liew (2013) analyzed the long-run causal relationship between foreign direct investment (FDI), domestic investment (DI) and economic growth in Malaysia. the study employed a time series data spanning from 1970-2008. The presence of complementary/substitution effect between FDI and DI is also investigated using impulse response function and variance decomposition analysis. The results suggest a long-run bilateral causality between economic growth and DI. There is no evidence of causality between FDI and economic growth. On the other hand, the results suggest a short-run crowding-in effect between FDI and DI.

In the final analysis, having examined a number of empirical literature it was discovered that studies on foreign direct investments and domestic investments are rife and researchers have examined it from various standpoints and varying literary perspectives. Most of the studies examined foreign direct investments and economic growth, effect of foreign direct investments and domestic investments on economic growth. None of the available literature investigated examine the effect impact of Foreign Direct Investments (FDI) on Domestic Investments (DI). The only related study was carried out by Yahia, Haiyun, Khan, Shah

and Islam (2018) in Sudan and a text book by Agosin and Machado (2005), thus warranting an empirical investigation in the study area. In order to fill this literature and

knowledge gap the study therefore examined the impact of Foreign Direct Investments (FDI) on Domestic Investments (DI) in Nigeria.

**METHODOLOGY**

**Model Specification**

The essence of economic modelling is to represent the phenomenon under investigation in such a way to enable the researcher to attribute numerical values to the concept. Thus, using the knowledge gained from the available empirical literature, the study examined the impact of foreign direct investment on domestic investment in Nigeria. The basic macroeconomic variables of concern that are being considered include foreign direct investment, per capita income, interest rate, consumption expenditure, savings and debt burden as the explanatory variables while domestic investment serve as the dependent variable of the model. Therefore, the model for this study is stated as followed:

The functional form of the model for the study is:

$$DIV = f(FDI, PCI, COX, SAV, INT, DEB) \dots \dots \dots \dots \dots (3.5)$$

The mathematical form of the model for the study is:

$$DIV = \beta_0 + \beta_1 FDI + \beta_2 PCI + \beta_3 COX + \beta_4 SAV + \beta_5 INT + \beta_6 DEB \dots \dots (3.6)$$

The econometric form of the model for the study is:

$$DIV = \beta_0 + \beta_1 FDI + \beta_2 PCI + \beta_3 COX + \beta_4 SAV + \beta_5 INT + \beta_6 DEB + \mu_i \dots \dots (3.7)$$

Where;

- DIV = Domestic investment proxied by capital investment as percent of GDP
- FDI = Foreign direct investment proxied by FDI as percent of GDP
- PCI = Per capita income proxied by current prices (U.S Dollars)
- COX = Consumption expenditure proxied by household consumption as percent of GDP
- SAV = Savings proxied by savings as percent of GDP
- INT = Interest rate
- DEB = Debt burden proxied by government debt as percent of GDP
- $\beta_0$  = Slope of the model
- $\beta_1 - \beta_6$  = Parameters of the regression coefficients
- $\mu_i$  = Stochastic error term

**Method of Data Analysis**

The economic technique employed in the study is the ordinary least square (OLS). This is because (i) the OLS estimators are expressed solely in terms of the observable (i.e. sample) quantities. Therefore, they can be easily computed. (ii) They are point estimators; that is, given the sample, each estimator will provide only a single value of the relevant population parameter. (iii) The mechanism of the OLS is simple to comprehend and interpret. (iv) Once the OLS estimates are obtained from the same data, the sample regression line can be easily obtained.

**Nature and Source of Data**

All data used in this research are secondary time series data which are sourced from the Central Bank of Nigeria (CBN) annual statistical bulletin and World Bank Databank.

**PRESENTATION AND ANALYSIS OF EMPIRICAL RESULT**

**Summary of Stationary Unit Root Test**

Establishing stationarity is essential because if there is no stationarity, the processing of the data may produce biased result. The consequences are unreliable interpretation and conclusions. The study test for stationarity using Augmented Dickey-Fuller (ADF) tests on the data. The ADF tests are done on level series, first and second order differenced series. The decision rule is to reject null hypothesis if the ADF statistic value exceeds the critical value at a chosen level of significance (in absolute terms). The summary of result of regression is presented Table 1 below.

**Table1: Summary of ADF Unit Root Test Results**

Variables	Level		1 <sup>st</sup> Difference		2 <sup>nd</sup> Difference	
	No Trend	With Trend	No Trend	With Trend	No Trend	With Trend
DIV	-1.283553	-2.873093	-4.671576	-5.639503	-7.020195	-6.703025
FDI	-1.187312	-2.861820	-6.385241	-6.160517	-7.719992	-7.796021
PCI	-0.007073	-1.608852	-4.221921	-5.194975	-8.028691	-7.687923
COX	0.888139	-2.358528	-7.017118	-7.028538	-10.68402	-10.25633
SAV	-1.540937	-2.554974	-7.032401	-6.995675	-10.34982	-9.918643
INT	-0.573475	-2.670615	-6.086221	-7.307698	-12.37888	-11.57537
DEB	-0.871342	-1.825199	-4.402549	-5.232423	-8.527223	-8.169602
@1%	-2.653401	-4.339330	-2.656915	-4.356068	-2.660720	-4.394309
@5%	-1.953858	-3.587527	-1.954414	-3.595026	-1.955020	-3.612199
@10%	-1.609571	-3.229230	-1.609329	-3.233456	-1.609070	-3.243079

Source: Researcher compilation from E-view

Evidence from unit root table above shows that all the study or model variables are not stationary at level difference but stationary at first difference. Since the decision rule is to reject null hypothesis if the ADF statistic value exceeds the critical value at a chosen level of significance (in absolute terms), and accept stationarity when ADF statistics is greater than criteria value, the ADF absolute value of each of these variables is greater than the 1%, 5% and 10% critical value at their first difference but less than 5% critical value in their level form. Therefore, the study concludes that DIV, FDI, PCI, COX, SAV, INT and DEB are all stationary at their first difference integration.

### Summary of Johansen Cointegration Test

Cointegration means that there is a correlation among the variables. Cointegration test is done on the residual of the model. Since the unit root test shows that none of the variable is stationary at level,  $I(0)$  rather they integrated at their first difference  $I(1)$ , the study therefore test for cointegration among these variables. The result is summarized and presented in tables 2 below for Trace and Maximum Eigenvalue cointegration rank test respectively.

**Table2: Summary of Johansen Cointegration Test**

Unrestricted Cointegration Rank Test (Trace)				
Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.949088	196.1416	125.6154	0.0000
At most 1 *	0.864339	118.7228	95.75366	0.0005
At most 2 *	0.709674	69.78520	66.81889	0.0052
At most 3 *	0.557618	47.62968	36.85613	0.0077
At most 4 *	0.235444	28.42455	19.79707	0.0013
At most 5	0.194532	6.444602	15.49471	0.6430
At most 6	0.031046	0.819986	3.841466	0.3652
<b>Trace test indicates 5 cointegrating eqn(s) at the 0.05 level</b>				
<b>* denotes rejection of the hypothesis at the 0.05 level</b>				
<b>**MacKinnon-Haug-Michelis (1999) p-values</b>				
Unrestricted Cointegration Rank Test (Maximum Eigenvalue)				
Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.949088	77.41883	46.23142	0.0000
At most 1 *	0.864339	51.93756	40.07757	0.0015
At most 2 *	0.709674	35.15552	33.87687	0.0091
At most 3 *	0.557618	27.20513	21.58434	0.0040
At most 4 *	0.235444	26.98944	21.13162	0.0047
At most 5	0.194532	5.624616	14.26460	0.6617
At most 6	0.031046	0.819986	3.841466	0.3652
<b>Max-eigenvalue test indicates 5 cointegrating eqn(s) at the 0.05 level</b>				
<b>* denotes rejection of the hypothesis at the 0.05 level</b>				
<b>**MacKinnon-Haug-Michelis (1999) p-values</b>				

Source: Researchers computation

Table 2 indicated that trace have five cointegrating variables in the model while Maximum Eigenvalue indicated also that there is five cointegrating variables. Both the trace statistics and Eigen value statistics reveal that there is a long run relationship between the variables. This will prevent the generation of spurious regression results. Hence, the implication of this result is that there is a long run relationship between domestic investment and other variables used in the model.

### Presentation of Result

The regression model is restated and the regression result follows:

**Table3: Summary of Regression Results**

Dependent Variable: DIV				
Method: Least Squares				
Sample: 1991 2018				
Included observations: 28				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	15.32602	4.793447	8.382998	0.0000
FDI	2.304530	1.156340	4.992952	0.0007
PCI	5.669376	3.707262	3.584035	0.0033
COX	-1.482920	2.937441	-5.164402	0.0004
SAV	4.190665	5.238767	7.799933	0.0000
INT	-5.821753	4.036756	-5.442186	0.0001
DEB	-3.023448	0.055396	-3.423277	0.0048
R-squared	0.844583	F-statistic		19.02004
Adjusted R-squared	0.800178	Prob(F-statistic)		0.000000
S.E. of regression	4.987797	Durbin-Watson stat		1.829817

Source: Researcher computation

### Evaluation of Findings

To discuss the regression results as presented in Table 3, the study employ economic a priori criteria, statistical criteria and econometric criteria.

### Evaluation Based on Economic A Priori Criteria

This subsection is concerned with evaluating the regression results based on a priori (i.e., theoretical) expectations. The sign and magnitude of each variable coefficient is evaluated against theoretical expectations.

From table 4.3, it is observed that the regression line have a positive intercept as presented by the constant ( $c$ ) = 15.32602. This means that if all the variables are held constant or fixed (zero), domestic investment will be valued at 15.33. Thus, the a-priori expectation is that the intercept could be positive or negative, so it conforms to the theoretical expectation. It is observed in table 3 that foreign direct investment (FDI), consumption expenditure (COX), and savings (SAV) has a positive impact on domestic investment in Nigeria. This means that if foreign direct investment (FDI), consumption expenditure (COX), and savings (SAV) positively increase, it will bring about positive increase in domestic investment in Nigeria. On the other hands, per capita income (PCI), interest rate (INT) and debt burden (DEB) has shown to exhibit a negative impact on domestic investment in Nigeria. Thus, increase in per capita income (PCI), interest rate (INT) and debt burden (DEB) will decrease domestic investment in Nigeria and vice versa.

From the regression analysis, it is observed that all the variables conform to the a priori expectation of the study. Thus, Table 4 summarises the a priori test of this study.

**Table4: Summary of Economic A Priori Test**

Parameters	Variables		Expected Relationships	Observed Relationships	Conclusion
	Regressand	Regressor			
$\beta_0$	DIV	Intercept	+/-	+	Conform
$\beta_1$	DIV	FDI	+	+	Conform
$\beta_2$	DIV	PCI	+	+	Conform
$\beta_3$	DIV	COX	-	-	Conform
$\beta_4$	DIV	SAV	+	+	Conform
$\beta_5$	DIV	INT	-	-	Conform
$\beta_6$	DIV	DEB	-	-	Conform

Source: Researcher's compilation

### Evaluation Based on Statistical Criteria

This subsection applies the  $R^2$ , adjusted  $R^2$  and the F-test to determine the statistical reliability of the estimated parameters. These tests are performed as follows:

From the study regression result, Table 4.3 indicated that the coefficient of determination ( $R^2$ ) is given as 0.844583, which shows that the explanatory power of the variables is extremely high and strong. This implies that 84% of the variations in the domestic investment are being accounted for or explained by the variations in foreign direct investment, per capita income, consumption expenditure, savings, interest rate and debt burden in Nigeria. While other determinants of domestic investment not captured in the model explain about 16% of the variation in domestic investment in Nigeria.

The adjusted  $R^2$  in Table 4.3 supports the claim of the  $R^2$  with a value of 0.800178 indicating that 80% of the total variation in the dependent variable (domestic investment) is explained by the independent variables (the regressors)). Thus, this supports the statement that the explanatory power of the variables is extremely high and strong.

The F-statistic: The F-test is applied to check the overall significance of the model. The F-statistic is instrumental in verifying the overall significance of an estimated model. The hypothesis tested is:

$H_0$ : The model has no goodness of fit

$H_1$ : The model has a goodness of fit

Decision rule: Reject  $H_0$  if  $F_{cal} > F_{\alpha}(k-1, n-k)$  at  $\alpha = 5\%$ , accept if otherwise.

Where

$V_1 / V_2$  Degree of freedom (d.f)

$V_1 = n-k, V_2 = k-1$ :

Where; n (number of observation); k (number of parameters)

Where  $k-1 = 7-1 = 6$

Thus,  $n-k = 28-7 = 21$

Therefore:  $F_{0.05(6,21)} = 2.57$  (From F-table) ... F-table

F-statistic = 19.02004 (From Regression Result) ... F-calculated

Therefore, since the F-calculated > F-table in table 4.3, the study reject  $H_0$  and accept  $H_1$  that the model has goodness of fit and is statistically different from zero. In other words, there is significant impact between the dependent and independent variables in the study.

### Evaluation Based on Econometric Criteria

In this subsection, the following econometric tests are used to evaluate the result obtained from the study model; autocorrelation, multicollinearity and heteroscedasticity.

#### Test for Autocorrelation

Using Durbin-Watson (DW) statistics which the study obtain from the regression result in table 3, it is observed that DW statistic is 1.829817 or approximately 2. This implies that there is no autocorrelation since  $d^*$  is approximately equal to two. 1.829817 tends towards two more than it tends towards zero. Therefore, the variables in the models are not autocorrelated and that the models are reliable for predications.

#### Test for Multicollinearity

This means the existence of a “perfect,” or exact, linear relationship among some or all explanatory variable of a regression model. This will be used to check if collinearity exists among the explanatory variables. The basis for this test is the correlation matrix obtained using the series. The result is presented in in Table 5 below.

**Table5: Summary of Multicollinearity Test**

Variables	Correlation Coefficients	Conclusion
FDI and PCI	-0.398429	No multicollinearity
FDI and COX	-0.457686	No multicollinearity
FDI and SAV	0.429299	No multicollinearity
FDI and INT	0.456397	No multicollinearity
FDI and DEB	-0.205245	No multicollinearity
PCI and COX	0.706974	No multicollinearity
PCI and SAV	-0.712035	No multicollinearity
PCI and INT	-0.731970	No multicollinearity
PCI and DEB	-0.513143	No multicollinearity
COX and SAV	-0.676699	No multicollinearity
COX and INT	-0.529636	No multicollinearity
COX and DEB	-0.025900	No multicollinearity
SAV and INT	0.492367	No multicollinearity
SAV and DEB	-0.006989	No multicollinearity
INT and DEB	0.329026	No multicollinearity

Source: Researchers compilation

Decision Rule: From the rule of Thumb, if correlation coefficient is greater than 0.8, the study conclude that there is multicollinearity but if the coefficient is less than 0.8 there is no multicollinearity. The study therefore, concludes that the explanatory variables are not perfectly linearly correlated.

#### Test for Heteroscedasticity

This test is conducted to see whether the error variance of each observation is constant or not. The hypothesis testing is thus:

$H_0$ : There is a homoscedasticity in the residuals

$H_1$ : There is a heteroscedasticity in the residuals

The decision rule if is to Accept the null hypothesis that there is a homoscedasticity (i.e. no heteroscedasticity) in the residuals if the probability of the calculated F-test statistic (F) is greater than the 0.05 level of significance chosen in the study, the null hypothesis will be accepted.

Hence,  $P(F) = 0.4654$ . This means that the probability F statistic is greater than .05 level of significance. Therefore, the study accepted the null hypothesis that the model has no heteroscedasticity in the residuals and therefore, the data is reliable for predication.

### CONCLUSION AND RECOMMENDATIONS

The study attempted to explain foreign direct investment, per capita income, consumption expenditure, savings, interest rate and debt burden as the determinants of

domestic investment in Nigeria covering a period of twenty eight years from 1991-2018 using Ordinary Least Square (OLS) technique method. All data used are secondary data obtained from the Statistical Bulletin of Central Bank of Nigeria (CBN) and National Bureau of Statistics (NBS) annual publications and World Bank Databank. In executing the study, the OLS techniques was applied after determining stationarity of the study variables using the ADF Statistic, it was discovered that the variables were all integrated at level, first and second difference, and found out to be stationary at their first difference. The study also using Johansen Cointegration Test, found that there is a long run relationship between the variables. Hence, the implication of this result is that there is a long run relationship between domestic investment and other variables used in the model. From the result of the OLS, it was observed that foreign direct investment, consumption expenditure and savings have a positive impact on domestic investment in Nigeria. This means that if foreign direct investment, per capita income and savings positively increase, it will bring about positive increase in domestic investment in Nigeria. On the other hands, consumption expenditure, interest rate and debt burden has shown to exhibit a negative impact on domestic investment in Nigeria. Thus, increase in per consumption expenditure, interest rate and debt burden will decrease domestic investment in Nigeria and vice versa.

From the regression analysis, it is observed that all the variables conform to the a priori expectation of the study and the variables of the study are statistically significant in

explaining domestic investment in Nigeria. The F-test conducted in the study shows that the model has a goodness of fit and is statistically different from zero. In other words, there is a significant impact between the dependent and independent variables in the model. Finally, the study shows that there is a long run relationship exists among the variables. Both R<sup>2</sup> and adjusted R<sup>2</sup> show that the explanatory power of the variables is extremely high and strong. Emanating from the result of this study, it is recommended that:

- A. There is need for government to formulate investment policies that will be favourable to local investors in order to complement the inflow of investment from abroad.
- B. Government should provide adequate infrastructure and policy framework that will be conducive for doing business in Nigeria, so as to attract the inflow of FDI.
- C. Policies that would improve per capita income of Nigeria should be pursued as this will stabilize and accelerate the rate of investment in Nigeria.

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