



## RELATIONSHIP BETWEEN PRIVATE DOMESTIC INVESTMENT AND ECONOMIC GROWTH IN NIGERIA (1986-2018): AUTO-REGRESSIVE DISTRIBUTED LAG APPROACH

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### Abstract

*A constant increase in domestic investment has been widely acknowledged as determinant of economic growth. Unfortunately since 1986 till 2018, Nigeria has been recording decline in the domestic investment, a situation that needs urgent attention. This calls for a re-examination of the effect of private domestic investment on economic growth in Nigeria, spanning 1986 to 2018. Upon the threshold of new classical theory of investment, economic growth was proxied by real gross domestic product, while private domestic investment was proxied by gross capital fixed formation. The study incorporated other investment measures like foreign direct investment and public investment into the model, while inflation and exchange rate were taken as control variables. Secondary data was sourced from CBN statistical bulletin of various editions and was estimated using autoregressive distributed lag bound test and its coefficients. The study revealed that private domestic investment and economic growth moves in a long run. It also found that in the short run, GFCF has a negative and significant effect on economic growth, CPCS and EXR have negative and insignificant effects on economic growth, while FDI and INF have positive and insignificant effects on economic growth. In the long run, GFCF has significant and positive effects on economic growth, CPCS, GCE, EXR and INF have positive and insignificant effects on economic growth while FDI has a negative and significant effect on economic growth. The study therefore concluded that private domestic investment has a significant positive effect on economic growth in Nigeria, and all other components of investment positively impacted on economic growth except foreign direct investment. Therefore, the study recommends among others that, government should provide an enabling environment for the private sector to function in order to contribute towards achieving increase in economic growth in Nigeria. The study further recommends policies and strategies that would enhance financial sector development in order to enhance the capacity of Nigerian capital market and banking sector towards providing and allocating necessary funds through accumulated savings for investment needed to achieve sustainable economic growth in Nigeria.*

**Keywords:** Private domestic investment, economic growth, government capital expenditure

### INTRODUCTION



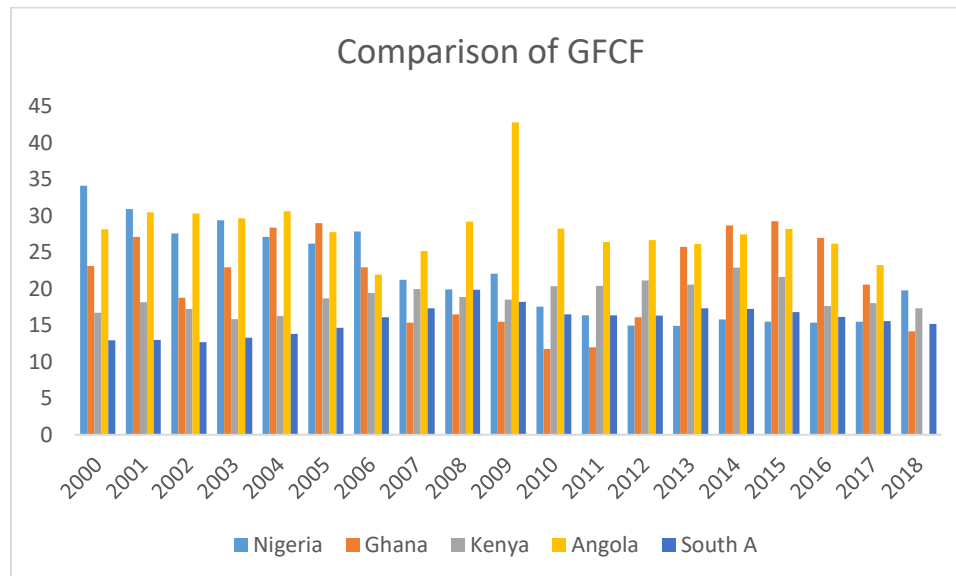
Any economy of the world has several macroeconomic objectives to achieve and one of it is economic growth. This has been the most focused objectives and as such, there have been many theories postulated by economists to explain those necessary determinants that can enhance the level of economic growth of a nation. For example, the classical theory of Harold (1948) and Domar (1946) explains that economic growth is achievable through the level of savings and productivity of capital, a situation where increase in investment leads to capital accumulation and hence growth. After this was the new-classical growth theory which was propounded by Solow (1956) although this was an extension of Harold-Domar theory and it explains that economic growth can be achieved when there is increase in two inputs, that is, capital and labour through technological progress. Furthermore, endogenous growth theory as propounded by Romer (1986) also introduces human capital investment as a factor which can enhance the continuous economic growth of nations. From all these, capital accumulation in term of increase in investment which can be in form of capital, assets and human resources are expected to spur economic growth

As a consequence, several studies have emanated by replicating these theories in respect to their economies so as to confirm the extent to which the level of investment has contributed to economic growth. Although, there have been heterogeneous findings, however, there is general acknowledgement that economic growth can be attained through domestic investment which is explained under fixed capital formation, foreign investment, and human capital investment. However, Kalu and Mgbemena (2015) argue that, private domestic investment can spur growth but this is highly dependent on the stage of the economy, business cycles, availability of financing and the level of public investment. This means that there is a relationship between private domestic investment and the stage of the economy and financial development of the economy. In addition to this, efficiency of capital market and financial deepening are also necessary ingredients for the achievement of economic growth. This was justified by Ayodeji and Ajala (2018) that, efficiency of capital market through which medium to long term capital can be sourced by private sector of the economy is necessary for the achievement of economic growth

Essentially, private domestic investment apart from contributing to the achievement of economic growth also helps in solving many socio-economic problems. Private domestic investment through private sector has been acknowledged to be an engine of employment, income creation, provisioning of infrastructural amenities and many other social services such as reduction of poverty and reducing trade and budget deficit (Nwakoby & Alajekwu, 2016; Osaid & Sarmidi, 2017). Not only that, it is also affirmed that expansion of economy production capacity and long run growth are achievable through it. This is so because, government cannot drive the economy alone but in collaboration with the private sector of the economy, a landmark achievement can be attained. To support this, Uremadu (2006) agitated for more dependence on private domestic investment rather than foreign direct investment in achieving economic growth. All these explain the importance of private domestic investment as a veritable tool in achieving economic growth.

Consequently, despite the importance of investment, the level of private domestic investment in Nigeria is still very low. As reported by World development indicators (2018), the ratio of private domestic investment to GDP declined from 54.95% to 19. 81% in 2018. Although when compared

with other Sub-Sahara Africa countries like Ghana, Kenya, and Sierra Leone, Nigeria is far better. This implies that Nigeria still has a long way to go in respect to strategies needed for achieving increase in economic growth.



**Fig 1: Ratio of private domestic investment to GDP in selected Countries in Sub-Saharan Africa**

Several studies have emanated on the relationship between private domestic investment and economic growth. However, the findings have been towards a positive impact of private domestic investment on economic growth. Some of the studies that found positive impact are, Baghebo and Edoumiekumo (2012), Ilegbinosa, Micheal and Watson (2015), Kalu and Mgbemena (2015), Osaïd, and Sarmidi (2016), Nwakoby and Alajekwu (2016), Oyedokun and Ajose (2018) among others. However, this study found a gap in terms of variables used by some existing studies. Most of the studies did not include public investment as a component of investment that can enhance economic growth. The capital expenditure of government plays a significant impact in achieving private domestic investment and economic growth, all these have been incorporated into the model. Also, the temporal scope of the existing studies was not resent. All these were given due consideration in this study.

## LITERATURE REVIEW

Jhingan (2003) referred to investment as addition to capital equipment which enables increase in the production of capital goods. In addition, Ibenta (2015) explained it to be accumulation of fund in financial and real assets with an objective of obtaining stream of return overtime. From finance perspective, it can be defined as commitment of long-term funds to long term projects that would yields benefits or returns in the future (Ayodeji, 2011). It can also be defined as investment in new plant and equipment, construction of public works like roads, dams, buildings, etc. which means the outlay of money for future use (Agu, 2015). From the definition given above, one thing is common, future benefits as a result of capital accumulation. This implies that, high investment or



capital accumulation would bring about future benefits to the economy, especially when this capital is well allocated to the different sectors of the economy for productive purpose

Investment can be generated internally and externally. The internally generated investment is called domestic investment or gross fixed capital formation, while the externally generated is called foreign direct investment. The major contributors to the internally generated investment are government, banking sector and capital market. Nwakoby and Alajekwu (2015) also classified investment to autonomous and induced investment. The autonomous investment is said to be in the purview of the public sector which can be induced by government while the induced investment is largely profit motivated and is propelled by the private sector. Hence, investment can be made up of public and private investment. Public investment is those capital expenditures incurred by government while investment made by private investors or a sector made up of private sector investment and this includes domestic investment and foreign private investment

Adetiloye and Adeyemo (2012) describe domestic investment as expenditure made to increase the total capital stock which can be achieved by acquiring further capital producing assets that can generate income within the domestic economy. This is also represented by gross fixed capital formation in the economy which can further be divided into private sector capital formation and public sector capital formation. The domestic private sector investment has also been proxies by credit to private sector from the financial system.

Investment can be generated internally and externally. The internally generated investment is called domestic investment or called gross fixed capital formation, while the externally generated is called foreign direct investment (Amighini, Mcmillian and Sanfilippo, 2017). The major contributors to the internally generated investment are government, banking sector and capital market. Nwakoby and Alajekwu (2015) also classified investment to autonomous and induced investment. The autonomous investment is said to be in purview of the public sector which can be induced by government while the induced investment is largely profit motivated and is propelled by private sector. Hence, investment can be public and private. Public investment is those capital expenditures incurred by government while investment made by private investors or sector made up of private sector investment which includes domestic investment and foreign private investment.

Therefore, continued increase in investment either from public sector or private sector or from the one generated externally is expected to bring about increase in economic growth. More importantly, economic growth has been conceptualised as continued increase in the production of goods and services in an economy over a fiscal year. It has also been defined as increase in the net national product in a given period of time usually a year (Dewett, 2005). In addition, Haller (2012) defined economic growth as the process of increasing the sizes of national economies, the macro-economic indications especially the GDP per capita mostly in an ascendant but not necessarily linear direction but with positive effects on the economic-social sector. He further explained that economic growth is in a limited sense an increase of the national income per capita and it involves the analysis in quantitative terms, with a focus on the functional relationship between the



endogenous variables and in a wider sense, the increase of the GDP, GNP and NI of the national wealth. These include the production capacity, expressed in both absolute and relative size, per capita, encompassing also the structural modifications of economy.

### **Theoretical Framework**

This study employed as its theoretical basis, neoclassical growth framework of Solow-Swan. This theory is a long run economic growth different from that of Harold (1939) and Domer (1946) which consistently study long term problems with usual short run tools. The new classical theory states that long run economic growth can be achieved through capital accumulation, labour or population growth and technology progress. The theory developed a Cobb Douglass production function which says that output is a function of capital, labour and technology. That is  $Y = AK^\alpha L^{1-\alpha}$ . The implication of this theory is that in the long run, economies converge to their steady state equilibrium and permanent growth is achievable only through technology progress. The theory was also adopted by Baghebo and Edoumiekumo (2012), Kalu and Mgbemena (2015), Nwakoby and Alajekwu (2016) in similar studies. This theory is an extension of Harold-Domer which explains that an economy can achieve increase and constant growth through accumulation of capital and labour. This means capital accumulation through increase in different form of investment can help countries, even less developed ones, to achieve economic growth.

### **Empirical Review**

Soli, Harvey and Hagan (2008) examined the relationship between fiscal policy, private investment and economic growth in Ghana. Cointegration and error correction model were used as estimation techniques. Dependent variable was proxied by GDP, while independent variable was proxied by government expenditure, current government capital expenditure, internal trade taxes, changes in tax on domestic goods and services, and tax on income and property. Time series data was estimated using augmented Dickey-Fuller test and cointegration. The study revealed that changes in government recurrent expenditure, current government capital expenditure and international trade taxes are significant for growth while changes in tax on domestic goods and services, tax on international trade and tax on income and property matter for private capital investment.

Tan and Tang (2011) examined the dynamic relationship between private domestic investment, the user cost of capital, and economic growth in Malaysia within a temporal scope, 1970 to 2009. Gross domestic product was used as dependent variable, while private domestic investment was used as independent variable. Secondary data was sourced and estimated using co-integration, Granger causality, variance decomposition, and impulse response techniques. The study found private domestic investment co-integrated with the user cost of capital, and economic growth. It also found a unidirectional granger causality running from private sector investment to GDP.

Baghebo and Edoumiekumo (2012) empirically investigated the relationship between public capital accumulation and economic development in Nigeria between 1970 and 2010. The study specified that economic development proxied by GDP per capital is a function of government capital expenditure on administration, government capital expenditure on economic sector,





government capital expenditure on transfer and government capital expenditure on social services, inflation rate and real interest rate. Secondary data was sourced from CBN statistical bulletin and estimation was done using co-integration and error correction model. It found that, private investment, public investment, real interest rate and inflation rate impacted positively on real gross domestic product.

Kalu and Mgbemena (2015) investigated the relationship between domestic investment and economic growth in Nigeria using a time series data spanning 1970 to 2012. The study proxied economic growth by real gross domestic product (RGDP), while it proxied private investment by private consumption, government expenditure and interest rate. Secondary data was obtained from Central Bank of Nigeria Statistical Bulletin and estimated using Johansen cointegration and error correction mechanism. The study found existence of long run relationship between domestic investment and economic growth. Further findings revealed that, domestic investment significantly impacted on economic growth in Nigeria.

Ilegbinosa, *et al.*, (2015) focused on the impact of domestic investment on economic growth in Nigeria using annual data from 1970-2013. Two models were specified for the study of which the first model used gross domestic product as the dependent variable while private investment, public productive expenditure and public protective expenditure were used as proxies of independent variable. On the other hand, the second model used private domestic investment as dependent variable while administrative expenses, economic services and social community service and transfer payments were used as the independent variable. Multiple regression and cointegration methods were employed to analyse the data. It was found that, that private investment and government productive investment had positive but insignificant impact on economic growth; while government protective investment had negative as well as insignificant impact on economic growth. In addition, it also found that government investment on administration, economic, social and community services crowded in private domestic investment but only investment on economic services was statistically significant

Osaïd and Sarmidi (2015) investigated the impact of private sector investment on economic growth in Palestine using quarterly time series data from 1990-2015. In the study, gross domestic product was used to proxy economic growth, domestic private investment was used as independent variable while foreign direct investment, real exchange rate consumer price index, and population were used as control variables. Secondary data was sourced and analysed using co-integration and multiple regression. It was found that, private sector investment and economic growth move in a long run, indicating a long run relationship effect on one another. It was further found that private sector investment had a significant impact on economic growth in Palestine.

Ozoh, Nwaka, Igberi, and Uma (2016) assessed the effect of domestic investment, foreign direct investment and economic openness on the economic growth of Nigeria within a temporal period 1970-2012. Model was specified using real gross domestic product as a proxy for economic growth, while domestic investment was used as proxy for independent variable, trade openness, and foreign private investment were used control variables. Secondary data was sourced from CBN



Statistical Bulletin and estimated using vector error correction. It found that, domestic investment has insignificant effect in promoting economic growth. It also found that, foreign direct investment response on growth was not satisfactory and openness result seems inconclusive and unsatisfactory but further analysis depicted desirable effect in the long-run of its operation

Nwakoby and Alajekwu (2016) investigated the effect of private sector investment on economic growth in Nigerian economy using annual time series spanning 1986 to 2014. Economic growth is represented by Gross Domestic Product while private sector investment variables such as domestic private investment, foreign direct investment and foreign portfolio investment with exchange rate, interest and inflation rate as control variables. Secondary data was sourced from CBN Statistical Bulletin and was estimated using ordinary least square method. It was found that, private sector investment and economic growth have long run significant effect on one another. It was further found that, domestic private sector investment, foreign direct investment, foreign private investment, and interest rate have a positive relationship with real GDP while inflation rate and exchange rate have negative relationship with real GDP. However, only domestic private investment and foreign direct investment are statistically significant in explaining changes in economic growth. Further results show evidence of unidirectional causal relationship from domestic private sector investment to gross domestic product.

Nguyen and Nguyen (2017) examined the linkage between public investment, private investment and economic growth in Vietnam within a temporal scope 1990 to 2016. The model was specified using gross domestic product as the dependent variable while private investment, public investment, foreign direct investment, trade openness ratio of public debt to GDP, private capital stock fixed and interest rate as proxies for independent variable. Cross sectional data was sourced from 22 economic industries and was estimated using Panel vector auto regression with GMM. It found that, public investment has a positive impact on economic growth in most economic industries in the short and medium term. It also found that public investment affects private investment and GDP across most industries/sectors with varying effects cyclically and over time. In addition, private and state investments also have an impact on GDP cyclically or threshold effects. It further found that real interest rates, private capital stock, economy openness and public debt have an impact on economic growth

Oyedokun and Ajose (2018) investigated the relationship between domestic investment and economic growth in Nigeria using annual time series spanning 1980-2016. Real gross domestic product was used as dependent variable while domestic investment and government expenditure were used as proxies of independent variable. Secondary data were sourced from CBN Statistical Bulletin and model specified was subjected to both Co-integration and granger causality tests. It found that existence of long run relationship between domestic investment and economic growth in Nigeria. Granger causality test found uni-directional causality running from domestic investment to economic growth. The study further found that, domestic investment positively impacted economic growth

## METHODOLOGY

This study investigates the relationship between private investment and economic development in Nigeria within a temporal scope 1986 to 2018. Therefore, dependent variable was proxied by GDP per capita. On the other hand, the independent variable was proxied by domestic investment, fixed capital formation, commercial bank credit to private sector and ratio of net flows of FDI to GDP while inflation and exchange rate are used as proxies for control variable. The model specification is stated in line with Kalu and Mgbemena (2015). The model stated in functional form as

$$RGDP = f(PINV, PC, GEXP, INT)$$

The above model stated that Real GDP is a function of private investment, private consumption, government expenditure, and real interest rate. Therefore, this study retained the dependent variable as stated in the model but modified the independent variables by incorporating various form of investment such as foreign direct investment, gross fixed capital formation and commercial banks credit to private sector. Inflation and exchange rate were included in the model as control variable. Hence, the model for the study is stated as

$$RGDP = f(GFCF, FDI, CPSC, GCE, INF, EXR) \dots \dots \dots 1$$

The model is stated in an explicit form as

$$RGDP_t = \beta_0 + \beta_1 GFCF_t + \beta_2 FDI_t + \beta_3 CPSC_t + \beta_4 GCE_t + \beta_5 INF_t + \beta_6 EXR_t + \mu_t \dots \dots \dots 2$$

Where  $\beta_0$  = constant term, RGDP = Real gross domestic product, GFCF= gross fixed capital formation, FDI= foreign direct investment, CPSC= commercial bank credit to private sector, GCE= Government capital expenditure, INF= inflation, EXR= exchange rate,  $\mu$ = error term

The model is estimated using Auto-Regressive Distributed Lag, the model is restated as

$$\begin{aligned} RGDP_t = & \beta_0 + \sum_{t-1}^n \beta_1 \Delta \ln RGDP_{t-1} + \sum_{t-1}^n \beta_2 \Delta \ln GFCF_{t-1} + \sum_{t-1}^n \beta_3 \Delta \ln FDI_{t-1} \\ & + \sum_{t-1}^n \beta_4 \Delta \ln CPSC_{t-1} + \sum_{t-1}^n \beta_5 \Delta \ln GCE_{t-1} + \sum_{t-1}^n \beta_6 \Delta \ln INF_{t-1} \\ & + \sum_{t-1}^n \beta_7 \Delta \ln EXR_{t-1} + \beta_8 \ln RGDP_{t-1} + \beta_9 \ln GFCF_{t-1} + \beta_{10} \ln FDI_{t-1} \\ & + \beta_{11} \ln CPSC_{t-1} + \beta_{12} \ln GCE_{t-1} + \beta_{13} \ln INF_{t-1} + \beta_{14} \ln EXR_{t-1} + \mu_t \end{aligned}$$

Where  $\Delta$  is the difference operator,  $\sum$ = summation,  $\beta_1 \dots \dots \dots \beta_7$  = coefficients of long run relationship,  $\beta_8 \dots \dots \dots \beta_{14}$  = coefficient of short term relationship.  $\ln$  =logarithm, n=number of years, t=1= time lag.





### **Apriori expectation**

In line with Harold Domar theoretical positions, it is expected that private domestic investment, credit to private sector, foreign direct investment, government capital expenditure would enhance the level of economic growth in Nigeria. It is also expected that inflation would have positive impact on economic growth while exchange rate is expected to negatively impact on economic growth. Therefore, a positive + sign is expected from all the forms of investments measures to economic growth.

### **Sources and Collection of Data**

The study used secondary data for the analysis. Data was extracted from Central Bank of Nigeria Statistical Bulletin and World Bank Development Index of various editions. While labour, inflation, exchange rate, technology index, private domestic investment were sourced from World Development Index, government capital expenditure, credit to private sector, foreign direct investment were from CBN Statistical Bulletin.

### **Estimation Techniques**

The study employed Auto-regressive distributed Lag as the estimation technique. Furthermore, it also used Augmented Dickey Fuller to test the stationarity of the data sourced, while Breusch Pagan and Serial Correlation tests were used to test for serial correlational and heteroskedasticity problems.

## **RESULTS AND DISCUSSION**

### **Standard Augmented Dickey Fuller Unit root test**

The first step of the analysis is to test for unit root among the series. The standard Augmented Dickey-Fuller (ADF) unit root test was used to check the order of integration of the variables. The results obtained are reported in Table 1. Based on the ADF test statistic, it was observed that log of inflation and log of the ratio of net flows of foreign direct investment to GDP were stationary at a level while a log of gross domestic product, a log of commercial bank credit to private sectors, log gross fixed capital formation, log government capital expenditure and log of exchange were stationary at first difference 1 (1). This implies that series is integrated of order I (0) and I(1). Hence, the null hypothesis which says there is unit root is rejected and the alternate hypothesis is accepted that the variables in the series have no unit root at a level and first difference.

**Table 1: Summary of Augmented Dickey Fuller**

Variables	Critical Value/Prob	@ 1 <sup>st</sup> Diff	@ 2 <sup>nd</sup> Diff	integration
LGDP	Test	-2.2874	-5.1401	I(1)



	Prob	0.1819	0.0002	
LCPSC	Test	-1.7401	-3.9372	I(1)
	Prob	0.4028	0.005	
LGCFC	Test	-0.9737	-5.2709	I(1)
	Prob	0.7505	0.0002	
LNFDI	Test	-3.6362	*****	I(0)
	Prob	0.0104		
LGCE	Test	-1.7542	-5.2705	I(1)
	Prob	0.3955	0.0002	
LEXR	Test	-2.5153	-5.6730	I(1)
	Prob	0.1214	0.0001	
INF	Test	-3.1061	*****	I(0)
	Prob	0.0365		

**Source: Authors' Computation from EViews, 9**

### **Auto Regressive Distributed Lag Bound Test for Co-Integration**

Arising from the ADF unit root test, the study employed ARDL bound test to establish the co-integration between private domestic investment and economic growth. The result is therefore presented in table 2. It was revealed that F-statistic value of 4.4781 is greater than the lower limit of 2.45 and upper limit of 3.61 at 5% level of significance. This evidences that, private domestic investment has a long run relationship with economic growth. Hence, the study concluded that, there is long run relationship between private domestic investment and economic growth.

**Table 2: ARDL Bound test for co-integration**

Test Statistic	Value	K
F-statistic	4.478191	6
Critical Value Bounds		
Significance	I0 Bound	I1 Bound
10%	2.12	3.23
5%	2.45	3.61
2.50%	2.75	3.99



1%	3.15	4.43
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Source: Authors' Computation from EViews, 9

Before the main estimation, there is need to choose an appropriate lag length for estimation. The study used VAR lag order selection criteria, and the result is presented in Table 3. It was found that, the estimation would be appropriate at lag 2 where Akaike information criteria (AIC) is the lowest. Hence, ARDL estimation would be estimated using lag 2

**Table 3: Summary of Lag Order Selection**

Lag	LogL	LR	FPE	AIC	SC	HQ
0	- 117.2617	NA	1.24e- 05	8.569771	8.899808*	8.673134*
1	- 67.65766	71.84030*	1.32e- 05	8.528115	11.16841	9.355022
2	- 6.229636	59.30982	1.10e- 05*	7.671009*	12.62156	9.221461

Source: Authors' Computation from EViews, 9

The result of the long run estimates is presented in Table 4. It was revealed that the coefficients of credit to private sector of 0.020, gross fixed capital formation of 0.5330, government capital expenditure of 0.1017, exchange rate of 0.096 and inflation of 0.0038 have positive long run relationship with economic growth while foreign direct investment of -0.1458 has negative long run relation with economic growth. The significant level of each variable revealed that, gross fixed capital formation and inflation exerted significant impact of economic growth in the long run while other variables have an insignificant impact on economic growth. This implies that, a unit increase in bank credit to private sector, gross capital formation, government capital expenditure, inflation and exchange rate would bring about increase in economic growth while reduction on economic growth would be as a result of a unit increase in foreign direct investment. The result further found that, gross fixed capital formation has the most outstanding effect on economic growth

**Table 4: Summary of Long run coefficients**

Long Run Coefficients				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
DLCPC	0.020864	0.16995	0.122768	0.9043
DLGFCF	0.533026	0.122025	4.36818	0.0009
DLNFDIG	-0.145888	0.091696	-1.591001	0.1376
DLGCE	0.101715	0.060911	1.669895	0.1208
DLEXR	0.096058	0.078794	1.219104	0.2462
INF	0.0038	0.001066	3.564577	0.0039
C	-0.031513	0.048263	-0.652948	0.5261

Source: Authors' Computation from Eviews, 9



Testing for short run relationship between private domestic investment and economic growth, the results is presented in Table 5. It was found that log of gross domestic product of 0.2065 has positive and insignificant effects on its innovation. It also revealed that, past value of commercial bank credit to private sector of -0.3690, gross fixed capital formation of -0.2933 and exchange rate of -0.1014 have negative short run relationship with economic growth while foreign direct investment of 0.1061, government capital expenditure of 0.1814, inflation of 0.000005 and exchange rate has positive short run relationship with economic growth. Checking their significant level, findings showed that only gross fixed capital formation was significant. The implication of this is that, a unit increase in bank credit to private sector, gross fixed capital formation and exchange rate would bring about decrease in economic growth while a unit increase in foreign direct investment, government capital expenditure and inflation would bring about increase in economic growth. In addition, the speed of adjustment where short run dynamics converge to the long run, that is,  $Ecm(-1)$  of -1.784 was rightly signed and the p-value of 0.0002 was highly significant. This implies that, the discrepancies in the short run are incorporated into the long run and corrected at 174% annually.

The coefficient of determination ( $R^2$ ) revealed that, 85.51% variation in dependent variable which is proxy by gross domestic product is explained or accounted for by CPSPS, GCFC, NFDIG, GCE, EXR and INF while 14.49% is accounted for by the variable not captured in the model. This is confirmed by the adjusted  $R^2$  of 66.20% which shows the true behaviours of the dependent variable according to the number of the explanatory variables. The F-statistic of 4. 42 is greater than the tabulated F-Statistics of 2.40 and the P-value (0.0063) is highly significant at 5%. This implies that the model is good and confirmed that private domestic investment has significant effect on economic growth. More importantly, the result of Durbin Watson test of 1.96 is very close to the benchmark of 2 which indicates that the variables in the series are free from serial auto correlation. From the analysis, the study therefore makes a general submission that private domestic investment has significant impact and long relationship with economic growth

**Table 5: Summary of Short Run coefficients**

Cointegrating Form				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(DLGDP(-1))	0.206521	0.166488	1.240458	0.2385
D(DLCPSC)	-0.086645	0.170843	-0.50716	0.6212
D(DLCPSC(-1))	-0.369075	0.21353	-1.72844	0.1095
D(DLGFCF)	0.541581	0.136125	3.978548	0.0018
D(DLGFCF(-1))	-0.293393	0.129914	-2.25837	0.0433
D(DLNFDIG)	0.037745	0.091471	0.412645	0.6871
D(DLNFDIG(-1))	0.106125	0.061176	1.73473	0.1084



D(DLGCE)	0.181472	0.111744	1.623992	0.1303
D(DLEXR)	-0.10143	0.096776	-1.04809	0.3152
D(INF)	0.000008	0.002481	0.003374	0.9974
CointEq(-1)	-1.78412	0.346142	-5.15431	0.0002
R <sup>2</sup> =0.8551	Adj-R <sup>2</sup> =0.6620	F-stat=4.42	Prob=0.0063	D.W=1.9691

Source: Authors' Computation from Eviews, 9

Table 6 presented diagnostic test results from both Breusch pagan and Godfrey serial correlation. These tests are very important as it tells if the series are having problem of serial correlation or heteroskedasticity that may arise from the variance error. It was revealed that, series are free from heteroskedasticity and serial correction problems

**Table 6: Summary of Diagnostic Tests**

Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	0.503908	Prob. F(2,10)	0.6187
Obs*R-squared	2.655081	Prob. Chi-Square(2)	0.2651
Heteroskedasticity Test: Breusch-Pagan-Godfrey			
F-statistic	1.636929	Prob. F(16,12)	0.196
Obs*R-squared	19.88787	Prob. Chi-Square(16)	0.2253
Scaled explained SS	2.901919	Prob. Chi-Square(16)	0.9999

Source: Authors' Computation from Eviews, 9

### Discussion of Findings

The study examined the effect of private domestic investment on economic growth in Nigeria, using annual series data spanning 1986 to 2018. Various forms of investment were used in this study such as private domestic investment represented by gross fixed capital formation, commercial bank credit to the private sector, foreign direct investment is represented by a ratio of net flows of FDI to GDP and government capital expenditure while the dependent variable, that is, economic growth was represented by gross domestic product. Besides, the study used two control variables, exchange rate and inflation. On the threshold of a neoclassical theory of investment as propounded by Solow (1956), the study found that in the short run, credit to private sector, gross fixed capital and exchange rate negatively affected economic growth while foreign direct investment and inflation positively affected economic growth. On a significant level, it was found that only gross fixed capital formation had a significant effect on economic growth in the short run. However, in the long run, the findings were impressive as all the investment variables except foreign direct investment with other control variables exert positive effects on economic growth.



The outcome of this study has proved that private domestic investment (GFCF) has a great impact on the growth of the economy. Hence, the a priori expectation of this study is in order although foreign direct investment negates the expectation in the long, which signals a red alert to the foreign investors of risk ahead of their investment. This is because of the volatility of insecurity, kidnapping, killings, political instability, harsh environments that affect returns on investment to investors.

The position of this study supported the findings of some existing studies. These studies are, Baghebo and Edoumiekumo (2012), Kalu and Mgbemena (2011), Ilegbonosa, *et al.*, (2015), Nwakoby and Alajekwu (2016), Nguyen and Nguyen (2017), Osaid and Sarmidi (2015), Ozoh *et al.*, (2016), Oyedokun and AJose (2018) and Tan and Tang (2011) as they all found positive effects of private domestic investment on economic growth in the long run. This implies that private domestic investment is one factor needed to engender an increase in economic growth.

## CONCLUSION AND RECOMMENDATIONS

Having examined the long-run effects of private domestic investment on economic growth within a temporal period 1986 to 2018, the study concluded that private domestic investment has significant positive effects on economic growth in Nigeria in a long run. It was also concluded that all other forms of investment incorporated in the model, such as CPSC, GCE have positive effects on economic growth. However, foreign direct investment has no negative effects on economic growth in a long run. On this basis, the study recommends as follows:

- i. The government should provide enabling environment for the private sector of the economy to contribute towards achieving economic growth in Nigeria.
- ii. Government should ensure that policies initiatives and strategies that would enhance financial sector development should be focused on to further enhance the capacity of the Nigerian capital market and banking sector towards providing and allocating necessary funds through accumulated savings for investment needed to achieve economic growth in Nigeria.
- iii. Foreign direct investment is good but should not be relied on as a long-term policy as it will not enhance the level of economic growth in the long run. More so, strong monetary policy that will maintain the status quo on the exchange rate and inflation should be formulated and implemented in order to enhance the achievement of economic growth in Nigeria.

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