# Impact of Government Capital Expenditure on Private Investment in Nigeria

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## Abstract

The study empirically examines the impact of government capital expenditure on private investment in Nigeria from 1986 to 2018. The study was carried out using unit root, and econometrics tools were used for testing and estimation. Augmented Dickey-Fuller (ADF) was used to test the stationarity, and the Regression analysis was used to estimate the impact of government capital expenditure on private investment in Nigeria, and the regression result, as well as the actual test of hypothesis using ARDL and ECM. From the study's findings, the data were stationary at various levels, and the impact estimate shows that government capital expenditure has a strong impact on private investment in Nigeria. The ARDL probability values show that the government administration expenditure, government social and community service expenditure, and government transfer expenditure were statistically insignificant in explaining the variation in private investment in Nigeria at a 5 percent level of significance. The government economic service expenditure in Nigeria was statistically significant in explaining the variation in private investment in Nigeria at a 5 percent level of significance. On the other hand, the probability of the ECM results shows that all the independent variables were statistically significant in explaining the variation in private investment in Nigeria at a 5 percent level of significance except government social and community service expenditure in Nigeria. This implies that all the variables have a significant impact on private investment in Nigeria except government social and community service expenditure. Among others, the study recommends that government should reexamine the mechanism of implementing government administration expenditure and government social and community service expenditure in order to resolve the insignificant impact these expenditures have on private sector investment in Nigeria.

**Keywords:** *Capital Expenditure, Administration, Economic, and Transfer expenditure*

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**Background to the Study**

Issues surrounding the relationship between public and private investment have drawn a lot of attention in the literature and this is basically because of its policy relevance. The interest of Economists in the relationship between government capital expenditure and private investment is motivated mainly by the controversy over the crowding out or crowding in effect of government expenditure on private investment. With the renewed interest in the role of the private sector as an engine of economic growth, the examination of this relationship is given further movement (Onyinlola, 2013). Also, the argument by the neoclassical economists is that public investment crowds out private investment and this occurs when an increase in government capital expenditure is financed by borrowing, resulting in the rise of interest rates (Rossiter, 2002). On the assumption of full employment of resources, high-interest rates lead to a decline in private investment. Public investment may crowd out private investment if the additional investment is financed by a deficit which leads to an increase in the interest rate, credit rationing, and tax burden. The Keynesians in contrast posit that an increase in government expenditure stimulates the domestic economic activity thus crowding in private sector spending on investment (Karagol, 2004).

Another point of strong controversy in the economic theory and policy is whether public and private investments are substitutes or complements. The free market advocates argue that public sector activity competes with the private sector for scarce resources and drives their prices up. Particularly, if government capital expenditures are financed by borrowing, this leads to a rise in market interest rates and thereby raising the cost of capital for the private sector. As a result, public sector investments crowd out private investment. Contrary to this argument is that public investment may be of benefit to the development of the private sector (Ukwu, 2002). However, Government capital expenditure, particularly in infrastructures crowd private sector spending by reducing costs and raising productivity, this, in turn, increases private returns (Udah, 2010). This is known as the infrastructural hypothesis.

Similarly, government capital expenditures in education and health can help to improve the level of the quality of human capital in the private sector economy. Government capital expenditures can also be used as a counter-cyclical economic policy measure to smooth the business cycle and revive activities in the private sector economy. As a result of the poor performance of the economy over the period in which the government played the leading role in the economy, there was a change in the expected role of the government. To this end, market-oriented structural reform programs such as privatization, deregulation, and liberalization were adopted to ensure a reduction in the role of government in the economy. The guiding principle in this redefined role of government was that government should concentrate its resources in areas that complement rather than crowd out private sector investment, thereby creating an enabling environment for the private sector investment (Onyinlola, 2013).

Building and operating infrastructure facilities, as well as the delivery of basic services, have predominantly been the responsibility of the public sector as they involve huge investment costs and take a long time for the returns on investment to be realized.

However, it has proved very difficult for many governments to meet the growing demand for infrastructure facilities and basic services by themselves. The inability of the public sector (government) to provide infrastructure and deliver services affects the promotion and expansion of businesses in communities. As a result, governments in several countries have been increasingly engaging the private sector in the provision of infrastructure facilities, investments in operation and maintenance of facilities as well as the delivery of basic services through public-private partnership arrangements (Pereira, 2001).

The role of government expenditure on private investment performance in Nigeria has not received much attention. Therefore, it is not clear what effects the government expenditure has had on private capital accumulation. This is a hindrance to policy formulators in achieving high levels of private investment through public expenditure management. It can be deduced that the problem of private investment in Nigeria has a strong link with expenditure patterns because there has been huge spending year after year, yet the performance of the private expenditure remains below target. Therefore, this study seeks to empirically examine the impact of government capital expenditure on private investment in Nigeria. While the specific objectives are to:
  i.    Examine the impact of Government Administration Expenditure on private investment in Nigeria;
  ii.   Investigate the impact of Government Social and Community Expenditure on private investment in Nigeria;
  iii.  Determine the impact of Government Economic Service Expenditure on private investment in Nigeria; and
  iv.   Assess the impact of Government Transfers Expenditure on private investment in Nigeria

Also, the hypotheses of the study are stated as follows:
  $H_{01:}$  Government Administration Expenditure has no significant impact on private investment in Nigeria.
  $H_{02:}$  Government Social and Community Expenditure has no significant impact on private investment in Nigeria.
  $H_{03:}$  Government Economic Service Expenditure has no significant impact on private investment in Nigeria.
  $H_{04:}$  Government Transfers Expenditure has no significant impact on private investment in Nigeria

**Literature Review**
**Conceptual Review**
In this section, the concept of investment, private investment, and government expenditure are discussed. The concepts of investment, private investment, and government expenditure like other finance concepts have no single definition or view. Thus, investment is made up of the public sector and the private sector investments. Private sector investment includes all investments made by the private sector, these include domestic investment, and foreign private investment while all government

capital expenditures form public sector investment. According to Onyinlola, (2013) investment can be defined as an increase in capital spending such as buying new machines, building infrastructures, and factories, etc. Through investment, the level of the capital stock of an economy is augmented in such a way that the rate of growth of supply is equal to the rate of growth of the capital stock. Rossiter (2002) sees private sector investment (privately owned part of the economy) as the part of the free market economy that is made up of companies and organizations that are not owned and managed by the government.

The Central Bank of Nigeria (2009) defined the private sector as a basic organizing principle for economic activity in a market-based economy where physical, as well as financial capital, is generally privately-owned and production decisions are made for private gain. Thus, the private sector in this study is the business organizations that are owned by individuals for their economic gains. Based on the above definitions, investment involves an outlay of funds with the expectation of future income. Investment can be divided into autonomous and induced investment. Autonomous investment is service-based and not induced by demand as it is not influenced by immediate returns while induced investment is largely profit-motivated. Autonomous investment is in the purview of the public sector and therefore propelled by the government.

According to Adetiloye and Adeyemo (2012) real domestic investment is expenditure made to increase the total capital stock in the economy. This is done by acquiring further capital-producing assets and assets that can generate income within the domestic economy. Domestic investment is the gross fixed capital formation in the economy. This can be divided into private sector capital formation and public sector capital formation. The domestic private sector investment has also been proxiedby a credit to the private sector from the financial system.

On the other hand, Lamartina and Zaghini (2007) believed that government expenditure is divided into two categories that are capital and recurrent expenditure; capital spending is an expenditure made by the government for the acquisition of structures for future consumption in the economy. That is money spent by the government on acquiring permanent infrastructural facilities that are essential to economic growth and development. While, recurrent expenditure refers to spending on current consumption such as salaries, wages, and overhead costs. The idea regarding the need and the effect of public expenditure varied over time. The early approach was closely linked with the philosophy of laissez-faire, according to which the government was the one that governed the least.

According to Abdullah, (2010) capital expenditure refers to the amount spent in the acquisition of fixed (productive) assets (whose useful life extends beyond the accounting or fiscal year), as well as expenditure incurred in the upgrade/improvement of existing fixed assets such as lands, buildings, roads, machines, and equipment, etc., including intangible assets. Expenditure in research also falls within this component of government

expenditure. Capital expenditure is usually seen as expenditure creating future benefits, as there could be some lags between when it is incurred and when it takes effect on the economy. According to Gregorious and Ghosh (2007), capital expenditure is a plan for acquiring and maintaining long-term assets. It is also a means of providing means of financing these activities. Typically, the capital expenditure includes some of the following: new infrastructural facilities, major renovations, and repairs to existing facilities. It is pertinent to state here that capital expenditure confers benefits for several years.

**Empirical Review**

Several works have been done by different researchers using different techniques on the impact of public expenditure on private investment. Atukeren (2004) in understanding the relationship between public and private investment used granger causality methodology for a sample of twenty-five developing countries in Africa, Asia, and Latin America over the period 1970-2000. His results indicate that public investment crowds in private investment. With the use of the probit model, he found out that the higher the share of government involvement in the economy, the lower the trade openness, and the more stable the macro and monetary environment is the higher the likelihood that public investment may crowd out private investment. Erden and Holcombe (2005) examined the effect of public expenditure on private investment in developing economies by applying several pooled specifications in a standard investment model to a panel of developing countries for 1980 to 1997. They observed that public investment complements private investment although private investment is constrained by the availability of bank credit. The same empirical models are run on a panel of developed countries. In contrast to developing economies, public investment crowds out private investment in developed economies.

Moreover, Akpan (2005) used the components of government expenditure and opined that no significant relationship exists between some government components and economic growth in Nigeria. And Aregbeyen (2007) while carrying out his study concluded that a positive and significant relationship exists between capital expenditure and economic growth but a negative relationship between recurrent expenditure and economic growth. Furceri and Sousa (2009) analyzed the impact of government spending on the private sector, assessing the existence of the crowding-out versus crowding in effects. With the help of panel data from 1960 to 2007, their findings show that government spending produces important crowding-out effects, by negatively affecting both private consumption and private investment.

Also, Nurudeen and Usman (2010) used time-series data from 1977 to 2008 to analyze the impact of government expenditure on economic growth in Nigeria. They concluded that government total capital expenditure has a negative effect on economic growth. Furthermore, Ighodaro and Okiakhi (2010) examined government expenditure using general administration, community, and social services in Nigeria. They applied the Granger causality test and used time-series data for 46 years ending 2007. The results showed that government expenditure has a negative impact on economic growth.

Amassoma, Nwosa, and Ajisafe (2011) used the error correction model to study the impact of government expenditure disaggregated into agriculture, education, health, transport, and communication on the Nigerian economy with data from 1970 to 2010. They concluded that only agriculture expenditure had a significant impact on the economy. Others had insignificant influence on economic growth. Oluwatobi and Ogunrinola (2011) also studied the impact of capital and recurrent expenditure on education and health (human capital) and their effect on economic growth using the Augmented Solow model. They discovered that there is a positive relationship between recurrent expenditure and human capital and the level of real output but a negative relationship between capital expenditure and the level of real output.

Loto (2011) studied the effects of government expenditures on security, health, education, transport, communication, and agriculture on the economy using an error correction test. He opined that expenditures on agriculture negatively impacted the economy. Education was both negative and non-significant to the economy. Expenditures on health positively impacted the economy while security, transport, and communication positively were non-significant to the economy. Kollamparambil and Nicolaou (2011) used quarterly data from 1960 to 2005 to analyze the nature and relationship between public expenditure and private investment in South Africa. They found out that although public investment is not crowding in or crowding out private investment, it exerts an indirect impact on private investment through the accelerator effect. They recommended that a more proactive fiscal policy is suggested to increase the investment- GDP ratio which can stimulate higher growth rates. Kim and Nguyen (2012) examined the effect of public sector spending on private sector investment not through the traditional channel of interest rate and tax but through the labor channel based on the fact that federal funds allocated to the local government are largely dependent on the local population level. Their results revealed strong evidence that an exogenous increase in the federal spending reduces both firms' capital investment, that is, the crowding-out effect. The effect of government spending is more pronounced among firms that are smaller in size, more geographically concentrated, and located in regions with high employment rates.

Onakoya and Somoye (2013) used the three-stage least squares and the macro-econometric model of simultaneous equations to look at the impact of public capital expenditure on different sectors of the Nigerian economy. They concluded that public capital expenditure impacts positively on the Nigerian economy. In Nigeria, Chude and Chude (2013) investigated the effects of public expenditure in education on economic growth in Nigeria over a period from 1977 to 2012, with a particular focus on disaggregated and sectorial expenditures analysis. The results indicated that Total Expenditure on Education is highly and statistically significant and hasa positive relationship with economic growth in Nigeria in the long run. The result has an important implication in terms of policy and budget implementation in Nigerian. They conclude that economic growth is impacted by factors both exogenous and endogenous to the public expenditure in Nigeria.

Also, Kareem, Bakare, Ademoyewa, Bashir, Ologunla, and Arije (2014) investigated the impact of public sector spending on economic growth in Nigeria for the period spanning from 1960-2010. The result shows that recurrent and capital expenditure contributed positively to economic growth in Nigeria with particular reference to the period under review. The result also revealed that capital and recurrent expenditures are statistically significant at a 1% level. The study concluded that government recurrent and capital expenditure have a significant influence on economic growth in Nigeria. Udo (2016) examined issues on and determinants of private investment in Nigeria. The study established that the expected sustained improvement in the level of private investment has been greatly constrained by the adverse impacts exerted by most of the determinants of private investment. The study has identified determinants of private investment in Nigeria to include domestic inflation rate, size and growth rate of market, availability, and access to bank credit, interest rate, fiscal deficits, public investment rate, poor provision of infrastructure, political and economic stability, investment climate and institutional factors.

Finally, Amana, Aigbedion, Mmo-Oyeleke and Onyishi (2018) examined assessing the impact of government expenditure on private investment in Nigeria from 1986-2016. The study revealed that in the long run government recurrent expenditure and inflation rate were positively related to private investment in Nigeria while government capital expenditure and interest rate in Nigeria were negatively related to Private Investment. Also, in the short run, all the independent variables were positively related to private investment in Nigeria except interest rate. Therefore, the study recommended that government should design monitoring and evaluating mechanisms to improve the efficiency and effectiveness of government capital expenditure and recurrent expenditure in Nigeria since government capital expenditure was statistically insignificant in determining the improvement of private investment in Nigeria.

**Theoretical Framework**
The study adopted the crowding-out effect theory as a theoretical framework. The theory was discussed by John Maynard Keynes in 1932 in an essay in Persuasion that was published by Brace Company in Harcourt New York. In economics, crowding out is a phenomenon that occurs when increased government involvement in a sector of the market economy substantially affects the remainder of the market, either on the supply or demand side of the market. One type frequently discussed is when expansionary fiscal policy reduces investment spending by the private sector. The government spending is "crowding out" investment because it is demanding more loanable funds and thus causing increased interest rates and therefore reducing investment spending. This basic analysis has been broadened to multiple channels that might leave total output little changed or even smaller (Olivier, 2008). Other economists use "crowding out" to refer to the government providing a service or good that would otherwise be a business opportunity for private industry, and be subject only to the economic forces seen in voluntary exchange.

Behavioral economists and other social scientists also use "crowding out" to describe a downside of solutions based on private exchange: the crowding out of intrinsic motivation and prosocial norms in response to the financial incentives of voluntary market exchange. A reduction in public investment can lead to a decrease in private investment since some private investments and public investments are complementary (Diaz-Alejandro, 1981). Dependence on external loan acquisition is not only thought wise because extreme domestic borrowing results in financial precariousness and crowding out the private sector (Panizza, Sturzenegger and Zettelmeyer, 2010) but also, as contended by Todaro and Smith (2006), it is necessary for unindustrialized nations in their initial phases of development to borrow externally since domestic savings at that stage could be insufficient for the achievement of the needed development. Therefore, based on this theory government fiscal activities like capital expenditures can have a negative or positive impact on private investment in any economy.

**Methodology**
**Sources of Data and Method of Analysis**
The data collected for the study is secondary data. The study employed time-series data from 1986 to 2018. The data were collected from the Central Bank of Nigeria (CBN) Statistical Bulletin December 2018. The data collected were Private Investment in Nigeria, administration, Economic Service, Social Community Services, and Transfers in Nigeria which were used for the estimation and analysis. To state the relationship between government expenditure and private investment in Nigeria, linear multiple regression were employed. According to Pesaran and Shin (1999), which was later expanded by Pesaran, Shin, and Smith (2001) the best technique that allow the estimation of variables that are integrated into 1(1) and 1(0) is Autoregressive Distributed Lagged (ARDL). Therefore, the study adopted the Autoregressive Distributed Lagged (ARDL) and Error Correction Model (ECM) to estimate and analyze the long and short-run impact of government capital expenditure on private investment in Nigeria. In addition, the Granger Causality test was carried out to determine the direction of causation between the variables, and Autoregressive Distributed Lagged (ARDL) -Bounds test procedure was used to examine the co-integration relationship between government capital expenditure and private investment in Nigeria.

**Model Specification**
The most important concern of this research is to quantify the factors that influence the behaviour of private investment in Nigeria. Udo (2016) analyzed the determinants of private investment. The instrument to be linked to private investment in Nigeria is the government capital expenditure which includes: government administration expenditure, government social and community services expenditure, government economic service expenditure, and government transfers expenditure in Nigeria. The model is specified below:

$$PIVN = f(GAE, GSCE, GESE, GTE) \qquad (1)$$

The econometric expression of this model is;
$$PIVN = \beta_0 + \beta_1 GAE + \beta_2 GSCE + \beta_3 GESE + \beta_4 GTE + \mu_t \qquad (2)$$

Where:
$\mu_t$ is the error term and $\beta 1 - \beta 4$ represent the various parameters.
While PIVN is the Private investment, which is composed of all domestic investment in Nigeria (dependent variable)
GAE    = Government Administration Expenditure.
GSCE  = Government Social and Community Expenditure.
GESE  = Government Economic Service Expenditure.
GTE    = Government Transfers Expenditure

The Autoregressive Distributed Lagged (ARDL) model that was used in this study is specified as follows:

$$
\Delta PIVN_t = \alpha_0 + \sum_{g=1}^{k} \alpha_{1i} \Delta PIVN_{t-i} + \sum_{h=1}^{l} \alpha_{2i} \Delta GAE_{t-i} + \sum_{i=1}^{m} \alpha_{3i} GSCE_{t-i} + \sum_{j=0}^{n} \alpha_{4i} \Delta GESE_{t-j}
$$
$$
+ \sum_{j=0}^{n} \alpha_{5i} \Delta GTE_{t-j} + \alpha_6 PIVN_{t-i} + \alpha_7 GAE_{t-i} + \alpha_8 GSCE_{t-i} + \alpha_9 GESE_{t-i} + \alpha_{10} GTE_{t-i}
$$
$$
+ \varepsilon_t \qquad (3)
$$

Equation (3) was used to examine the short-run and long-run relationship between government expenditure and private investment in Nigeria. The Error Correction Model (ECM) used in this study is specified as follows:

$$
\Delta PIVN_t = \beta_0 + \sum_{g=1}^{l} \beta_{1i} PIVN_{t-i} + \sum_{h=1}^{m} \beta_{2i} \Delta GAE_{t-i} + \sum_{i=1}^{n} \beta_{3i} \Delta GSCE_{t-i} + \sum_{j=0}^{n} \beta_{4i} \Delta GESE_{t-1}
$$
$$
+ \sum_{k=0}^{n} \beta_{5i} \Delta GTE_{t-1} + \beta ECM_{t-1} + \varepsilon_t \qquad (4)
$$

The model above is used to adjust the estimation until the ECM turned negative. The negative sign of the coefficient of the error correction term ECM (-1) shows the statistical significance of the equation in terms of its associated t-value and probability value.

**Presentation and Discussion of Results**
**Descriptive Analysis of Variables**
**Table 2:** Descriptive Test Result

|  | GAE | GSCE | GESE | GTE | PIVN |
|---|---|---|---|---|---|
| Mean | 124.2570 | 61.00030 | 230.5785 | 74.13364 | 485.7510 |
| Median | 73.58000 | 32.47000 | 215.3300 | 43.59000 | 225.2400 |
| Maximum | 446.2500 | 203.4200 | 753.4900 | 278.9400 | 1842.560 |
| Minimum | 0.260000 | 0.620000 | 1.100000 | 0.000000 | 0.735000 |
| Std. Dev. | 123.5259 | 62.19654 | 199.3693 | 82.53973 | 540.5370 |
| Skewness | 0.702508 | 0.721150 | 0.567083 | 1.181316 | 0.918747 |
| Kurtosis | 2.476443 | 2.195586 | 2.628808 | 3.099950 | 2.706975 |
| Jarque-Bera | 3.091251 | 3.750051 | 1.958160 | 7.689024 | 4.760590 |
| Probability | 0.213179 | 0.153351 | 0.375657 | 0.021397 | 0.092523 |
| Sum | 4100.480 | 2013.010 | 7609.090 | 2446.410 | 16029.78 |
| Sum Sq. Dev. | 488277.1 | 123789.1 | 1271940. | 218009.8 | 9349769. |
| Observations | 33 | 33 | 33 | 33 | 33 |

**Source:** Authors Computations (2020), using Eviews-10

Table 2 shows the descriptive analysis of the variables used in the study. From Table 2, the highest value for private investment during the period of study is 1842.56 billion as shown in the table of data presentation. Also, peak values of government administration expenditure, government social community services expenditure, government economic service expenditure, and government transfers expenditure in Nigeria are 446.25 billion, 203.42 billion, 753.49 billion, and 278.94 billion respectively. However, the lowest value for private investment in Nigeria during the period of study is 0.74 billion. While, the lowest values of government administration expenditure, government social community services expenditure, government economic service expenditure, and government transfers expenditure in Nigeria are 0.26billion, 0.62 billion, 1.10 billion, and 0.00 billion respectively.

On average, the value of private investment in Nigeria is 485.75 billion. Finally, government administration expenditure, government social community services expenditure, government economic service expenditure, and government transfers expenditure in Nigeria is₦124.26billion, ₦61 billion, ₦230.58 billion and ₦74.13 billion respectively as indicated by their mean values.

**Stationarity Test of Variables**
Augmented Dickey-Fuller (ADF) test was used to ascertain whether the five variables of the study exhibit unit root property. This is to find out if the relationship between economic variables is spurious or nonsensical. Econometric studies have shown that most financial and macro-economic time series variables are non-stationary and using non-stationary variables lead to spurious regression (Engel and Granger, 1987). Thus, the variables were investigated for their stochastic properties using ADF (1979) unit root test technique. The result of the unit root test is presented in Table 3.

**Table 3:** Traditional Unit Root Test Result (Trend and Intercept)

| Variables | ADF-statistics | Critical Values | Order of integration |
|---|---|---|---|
| PIVN | -7.790918 | -4.356068 | I(0) |
| GAE | -5.819927 | -4.374307 | I(0) |
| GSCE | -3.645969 | -3.574244 | I(1) |
| ESE | -4.29157 | -3.595026 | I(0) |
| GTE | -7.634654 | -4.309824 | I(1) |

**Source:** Author computations (2020), using Eviews-10

From Table 3, the traditional test of the ADF indicates that three of the variables tend to be stationary at levels and they are PIVN, GAE, and GESE. Their ADF test statistics values of -7.790918, -5.819927 and -4.29157 are greater than their critical values of-4.356068, -4.374307 and -3.595026 at 5% levels respectively. However, GSCE and GTE were found stationary at the first difference (that is at order 1(1)) and 5 and 1percent. Therefore, all the variables were found to be stationary at different orders a mixture of 1(1) and 1(0) and thus that the bounds testing co-integration approach.

**Co-integration Test Result**
Having established the order of integration, the next task of the study is to establish the long-run relationship among the variables. Economically, variables are co-integrated if they have a long term or equilibrium relationship between them. Thereafter, the bounds testing approach is used to determine whether a long-run co-integration relationship exists between private investment in Nigeria and government capital expenditure (government administration expenditure, government social community services expenditure, government economic service expenditure, and government transfers expenditure). The result of the co-integration test is presented in Table 4.

**Table 4:** Bounds Test Co-Integration Result

| F-Bounds Test | | Null Hypothesis: No levels relationship | | |
|---|---|---|---|---|
| Test Statistic | Value | Significance | 1(0) | 1(1) |
| F-statistic | 15.28175 | 10% | 2.2 | 3.09 |
| K | 4 | 5% | 2.56 | 3.49 |
| | | 2.5% | 2.88 | 3.87 |
| | | 1% | 3.29 | 4.37 |

**Source:** Author computations (2020), using Eviews-10.

The co-integration test result shows that the F-statistic value of 15.28 is greater than the lower 1(0) and upper bound 1(1) critical value at the 5% significance level. Thus, the null hypothesis of no long-run relationship is rejected at the 5% significance level. It can therefore be inferred that the variables are co-integrated. Thus, there is a long-run co-integrating relationship between macro-economic variables and Private Investment.

**Error Correction Model (ECM) Regression Results**
**Table 5:** Error Correction Regression (ECM)

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| D(PIVN(-1)) | 0.895565 | 0.043250 | 20.70681 | 0.0000 |
| D(GAE(-2)) | -12.74536 | 4.308275 | -2.958343 | 0.0316 |
| D(GSCE(-1)) | -0.726297 | 0.888295 | -0.817630 | 0.4508 |
| D(GESE(-1)) | -0.001385 | 0.000115 | -12.01419 | 0.0001 |
| D(GTE(-1)) | 856.9019 | 168.8983 | 5.073479 | 0.0039 |
| ECM(-1)* | -0.742451 | 0.054827 | -13.54182 | 0.0000 |
| R-squared | 0.992811 | | | |
| Adjusted R-squared | 0.981309 | | | |
| S.E. of regression | 59.66779 | | | |
| Sum squared resid | 35602.45 | | | |
| Log-likelihood | -135.2998 | | | |
| Durbin-Watson stat | 1.940346 | | | |

**Source:** Authors Computation, 2020 (Eviews-10)

As expected, the lagged error correction term is negative, less than unity, and statistically significant at 5 percent. The coefficient of (-0.7424) revealed that once there is disequilibrium in the system, it takes an average (high) speed of 74.24% to adjust itself back towards the long-run equilibrium level. The $R^2$ (R-square) value of 0.9928 shows that the independent variables have a very good impact on Private Investment. It indicates that about 99.28 percent of the variation in Private Investment is explained by independent variables, while the remaining unaccounted variation of 0.72 percent is captured by the error term.

All the independent variables were negatively related to private investment in Nigeria except government transfer expenditure in Nigeria which was positively related to private investment in Nigeria. Finally, the probability value shows that all the independent variables were statistically significant in explaining the variation in private investment in Nigeria at a 5 percent level of significance except government social and community service expenditure in Nigeria. This implies that all the variables have a significant impact on private investment in Nigeria except government social and community service expenditure.

**The ARDL Long Run Result**
**Table 6:** ARDL Long-run Results: (Dependent Variable: PIVN)

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | 1949.868 | 1547.618 | 1.259916 | 0.2633 |
| GAE | -2.389940 | 36.53182 | -1.994090 | 0.2118 |
| GSCE | 3.617244 | 4.317308 | 1.837847 | 0.4403 |
| GESE | 0.140048 | 0.00016 | 0.063410 | 0.0003 |
| GTE | -2.347682 | 2305.524 | -0.778060 | 0.4717 |

**Source:** Author Computation, 2020 (Eviews-10)

Table 6 shows the long run results on the impact of government expenditure on private investment in Nigeria. From the result, a unit increase in government social and community service expenditure and government economic service expenditure in Nigeria on average, holding other independent variables constant will lead to a 3.61 and 0.14-unit increase in private investment in Nigeria respectively. While a unit increase in government administration expenditure and government transfer expenditure in Nigeria on average holding other independent variables constant will lead to a 2.39 and 2.35-unit decrease in private investment in Nigeria. From the result also, based on the probability value, the government administration expenditure, government social and community service expenditure, and government transfer expenditure were statistically insignificant in explaining the variation in private investment in Nigeria at a 5 percent level of significance. While government economic service expenditure in Nigeria was statistically significant in explaining the variation in private investment in Nigeria at a 5 percent level of significance.

The results obtained under this section were generated using the long-run regression analysis. The hypotheses were tested using t-statistics based on the selected variables against Private Investment. The level of significance for the study is 5%, for a two-tailed test. The decision rule is that we shall accept the null hypothesis if the critical t- statistic value of ±1.96 is greater than the calculated t- statistic, otherwise we reject the null hypothesis. That is, using the t-test (t-statistic), we say that a variable is statistically significant if the t* (t-calculated) is greater than the critical t- statistic of ±1.96 under 95% (or 5%) confidence levels and it is statistically insignificant if the t* is less than the tabulated value of ±1.96 under 95 % ( or 5%) confidence levels.

**Conclusion and Recommendations**
Based on empirical results, this study concludes that in the long-run, government administration expenditure has a positive impact on private investment in Nigeria. This implies that the private sector investment is influenced to a significant extent by the expenditure from the public sector. Government social and community services expenditure on the other hand was observed to be negative. Also, the negative impact of some of the government capital expenditure indicators in Nigeria is because most capital expenditures are mainly from domestic and external borrowing which crowd out private investment in Nigeria.

Based on the findings in section four above, the following recommendations are advised:
  i.    The government should reexamine the mechanism of implementing government administration expenditure and government social and community service expenditure in order to resolve the insignificant impact these expenditures have on private sector investment in Nigeria.
  ii.   The long-run policies of the government economic services capital expenditure should be encouraged this is because the government economic services capital expenditure has a significant impact on private investment in Nigeria in the long run.

iii. The short-run policies on government transfer capital expenditure should be encouraged. This is because government transfer capital expenditure has a significant impact on private investment in Nigeria in the short run.

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