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Causal Relationship between Fiscal Policy and Private Investment in Nigeria for the period 1986 - 2019

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Authors' contributions

This work was carried out in collaboration among all authors. Author KOC designed the study performed the statistical analysis. Author COCN managed the protocol, and wrote the first draft of the manuscript. Author CEUG managed the analyses of the study and author ASK managed the literature searches. All authors read and approved the final manuscript.

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ABSTRACT

This study investigated the causal relationship between fiscal policy and private investment in Nigeria (1986-2019) using secondary data from Statistical bulletin of Central Bank of Nigeria. The research work used the Granger Causality techniques to test the causal relationship between the independent variables (Tax revenue, Oil revenue, Total expenditure and Public debt) on the dependent variable (Private Investment) while VAR was used to test the short run relationship. The study found that fiscal policy instruments granger causes private investment in Nigeria within the period of the study. The study therefore advocates that Government should as necessity fully liberalized or privatized NNPC and the Power sector as these critical sectors will help the growth of the private sectors and reduce unemployment in the country. Nigerian Government ought to increase its spending on infrastructure, especially capital projects in the economy in order to bridge

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infrastructure gap in the country. Provision of tax incentives to private sectors by the Government should be encouraged, as this will help the growth of private investment in the country. Also, restructuring of the economy by manufacturing what we need should be encouraged by government because exporting commodity (raw material) means exporting jobs.

Keywords: Fiscal policy and private investment.

1. INTRODUCTION

The award of $1.5 billion contract by the federal government on March 18th for the rehabilitation of moribund Port Harcourt refinery has brought the issue of private sector growth as against public investment growth to forefront. Private investment is the efficient and effective utilization of private resources in the country and this is one of the main drivers of growth and sustainable development in an economy [1]. Karagol [2] suggests that private sector led growth has a greater effect on the economy than public sector growth. The reason being that efficiency in private sector is higher than that of public sector. Private sector also plays a key role in the urbanization and economic development of a country. Equally, private sector is a major contributor to national income, a major job creator and principal employer of labour. In developing world private sector has helped in providing around 90% of employment both in the formal and informal sectors of the economy [3]. The sector also helps in the distribution of vital goods and services, contributes to tax revenue and ensures efficient flow of capital [4].Growth in private investment also leads public investment to complement private sector efforts. This is motivated by an increase in the demand of essential public services that give impetus to private sector development. Public investment is vital in reducing cost of production for the private investors, especially the one directed towards physical infrastructure development [5]. Private investment by foreign citizens operating in a country is an important link between developing and developed countries. Like trade, it provides an important channel for global integration and technological transfer. This impact directly on the national output through its contribution to higher factor productivity, changes in product and research and development. It can also have an indirect impact through collaboration with local research and development institutions and technology transfer to local downstream and upstream producers [6].

Nigeria in the last ten years has begun to shift its focus from public sector to private sector led growth strategies that emphasize the dominance of market forces in the economy. The strategy involves the reduction of public sector production as well as redefined role of the public sector in the development process under the guiding principle that the public sector should devote its resources in areas where it supports rather than replaces private sector investment [7]. The private sector growth started in Nigeria in 1980s but before then, the oil boom of 1970s gave rise to public sector-led strategy. The aim of the government at that time was to have dominant control over its own resources [8].Thereafter the dwindling revenue of government as a result of economic crisis and fall in oil price coupled with the displeasure in the performance of some of government owned corporations saw the clamor for private sector growth. As such, the structural adjustment programme (SAP) was put in place in 1986, with the objective, among others, of facilitating the development of the private sector, whose role could determine the level of economic growth of the Nigerian economy. The SAP and other policies engendered the much needed private investments.

Structural adjustment programmes of the World Bank and IMF emphasizes the need to reduce government budget deficits in order to stimulate private initiative. The fiscal policy adjustments described in the programmes signify a reduced role of government in the economy. The reduction of the role of government in the economy is a key element of the SAP programme, which aims at increasing the role of the market mechanism [9]. According to the World Bank and IMF reducing the role of the government will reduce barriers to private initiative and will stimulate investment activities, both qualitatively and quantitatively. Increased investment ultimately leads to higher economic growth. In 1986 Nigeria commenced its structurual adjustment programme, the IMF loan was aimed at reducing structural imbalances which led to the stagnation of economic growth performance within the period. An important element of the programme is the conditionality on the change of economic policy, within this period Nigeria focused on fiscal adjustment and restructuring of the public sector. Therefore the

programme aims at reducing government spending and increasing revenues through such measures as reduction in civil service wage bill, reduction of subsidies and tax reforms [8]. From 1986 to 2019, private investment in Nigeria has experienced an upward trend, efforts have been made to privatize the public sector, remove price distortions and liberalize the economy [10].

Despite these efforts of government the critical sectors of the economy like Nigerian National Petroleum Corporation and electricity are still not fully privatized and government still spends billions of naira on these Coperations Government plans to spend 1.5billion United States dollars on NNPC rehabilitation coupled with 9.8billion naira salary being spent on the workers. The much needed revenue and employment that suppose to be derived if such enterprises are privatized are not fort coming. As such the much needed benefit of private investment is lacking in the country, the rate of unemployment and poverty increasing in the country. That's why World Bank Report [11] refers to Nigeria as the poverty capital of the world. Various research work Isaac and Samuel [12], Nathan [13], Agu et al.[14],Dantama and Gatawa [15],Malik [4], Okoro [16] and Voss [17] etc has been carried out on this subject matter and results show that fiscal policy has significant effect on private investment while other results show insignificant effect. Their findings are contradictory and itis on this background that the study was motivated to fill the knowledge gap on the effects of fiscal policy on private investment in Nigeria from 1986 -2019. The paper is arranged as follows. Section two focuses on literature review, section three focuses on methodology and section four on conclusion and policy implication.

2. LITERATURE REVIEW

Investment has been defined as an asset or item obtained with the aim of generating income or appreciation [18]. Investment is also the procurement of goods that are not consumed today but used in the future to generate wealth [18]. Ajayi [19] also defined investment as monetary asset acquired with the idea that the asset will provide income in the future or will be sold later at a higher price for a profit. He also opined that public investment involves funding and allocating resources for projects and services that the private sector cannot effectively deliver on its own. These projects are usually large in scale and the private sector does not get involved in most of them. Tsoulfidis, [20] explains the difference between private and public investment: private investment means putting your own money at risk in anticipation of realizing a gain later while public investment means taking and spending someone else's money to support your idea of how you think they should live or to satisfy the special interests that help get you re-elected. Hoag &Hoag [21] also emphasized that public investment is the key channel through which the government development goals can be met which will help grow the economy. In essence it involves government spending today in order to grow the economy.

Fiscal policy is the means by which a government adjusts its spending levels and tax rates to monitor and influence a nation's economy. Some of the major instruments of fiscal policy are as follows: A. Budget B. Taxation C. Public Expenditure D. Public Works E. Public Debt.

2.1 Taxation

Anyanwu [22] defined tax revenue as the compulsory transfer or payment of money(or occasionally of goods and services) from private individuals, institutions or groups to the government. Sanni [23] advocated tax as an instrument of social engineering which can be used to stimulate general or special economic growth. Taxation is an instrument employed by the government for generating public funds [24]. It is a required payment imposed by the government on the income, profit or wealth of individuals, group of persons, and corporate organizations.

2.2 Public Expenditure

The term "government expenditure" was born out of revenue allocation which refers to the redistribution of fiscal capacity between the various levels of government or the disposition of responsibilities between tiers of the government [16]. Government expenditure is also referred to as Public Expenditure i.e. Government spending. Expenditure in public affairs is classified into two broad segments, namely capital and recurrent expenditure. Expenditure directed to things of permanent nature, is called capital expenditure which include construction of roads, water and electricity, acquisition of other fixed assets, expenditure on stocks and grants and lending for capital purposes. But if it is channeled to

something that is not of permanent nature and those expenses that are repeated yearly, it is referred to as recurrent expenditure, there are personnel and overhead costs such as salaries and wages, travel and transport, utility services, entertainment and hospitality [25].

2.3 Public Debt

According to Mankiw [26], every country's economy requires an amount of capital for investment and to sustain economic development. In a situation when government expenses surpass its tax collection, it has a budget deficit. When a government incurs a deficit, it can meet this deficit by the following means (a) it can run down its cash reserves (b) It can sell its assets like properties (c) It can print more currency and use it (d) It can borrow and spend [27]. Note that the second method of meeting the deficit does not at all increase the indebtedness of the government though a government seldom adopts this approach. The first and third methods increase the supply of currency of the government in the market while the fourth increases the outstanding public debts.

2.4 Budget

A budget is a framework for revenue and expenditure outlays over a particular period usually one year [28]. The public budget is redolent of a technical, quantitative text that refers to expenditures and revenue-collection decisions made in a given time frame at central or local levels of government. Yet, budget is not only a technical, but also a political text [29]. After all, the budget reflects the public preferences and priorities of those members of society who will be served by and included in funding of activities [30].

2.5 Public Works

Keynes General Theory highlighted public works programme as the most significant anti-depression device. There are two forms of expenditure i.e., Public Works and 'Transfer Payments. Public Works according to Clark [31] are durable goods, primarily fixed structure, produced by the government. They include expenditures on public works as roads, rail tracks, schools, parks, buildings, airports, post offices, hospitals, irrigation canals etc. Transfer payments are the payments like interest on public debt, subsidy, pension, relief payment, unemployment, insurance and social security benefits etc. The expenditure on capital assets (public works) is called capital expenditure. Keynes [32] had strong faith in such a programme that he went to the extent of saying that even completely unproductive projects like the digging up of holes and filling them up are fully admissible.

2.6 Why Focus on Private Investment?

Structural adjustment programmes of the World Bank and IMF emphasise the need to reduce government budget deficits in order to stimulate private initiative. The fiscal policy adjustments described in the programmes signify a reduced role of government in the economy. The reduction of the role of government in the economy is a key element of the Washington consensus, which aims at increasing the role of the market mechanism [9]. According to the World Bank [33] reducing the role of the government will reduce barriers to private initiative and will stimulate investment activities, both qualitatively and quantitatively. Increased investment ultimately leads to higher economic growth. Another reason to focus on private investment is that previous studies have shown that a disproportionate share of the change of economic growth of countries is explained by a change of private investment as a result of changes in fiscal policy. This result stresses the importance of effects of fiscal policy on the quantity of investment.

3. THEORETICAL FRAMEWORK

3.1 Keynesian Approach

It is Keynes [32] who first called in to attention the existence of an independent investment function in the economy. The heart of the analysis was the observations that, although savings and investment must be equal at equilibrium savings and investment decisions were made by different people. The implication of his argument was that there was no reason why ex-ante savings should equal ex-ante investments. Keynesian approach further proposed that firms ranked various investment projects depending on their internal rate of return. Thus, given a rate of interest or cost of capital, an investor would choose a project whose internal rate of return exceeded the rate of interest. The Keynesian economists also formulated the accelerator theory, which made investment a linear proportion of changes in output. In the accelerator model, expectations,

profitability and capital costs played no role. A more general form of the accelerator model was the flexible accelerator model. The basic notion behind this model was that, the larger the gap between the existing capital stock and the desired capital stock, the greater would be the firm's rate of investment. Within the framework of the flexible accelerator model, output, internal funds, cost of external financing and other variables may be the determinants of desired capital stock. Under the Keynesian approach, fiscal policy could influence investment by either its implication on government spending and taxation or by determining the speed of adjustment between actual and desired investment [34].

3.2 The Real Option Approach

The element of uncertainty in investment theory has received much attention due to irreversible investments and policy inconsistency [35,36]. The argument is that since capital goods are often firm specific and have low-resale value, dis-investment is more costly than positive investment. The theory was developed by considering a firm's problem of deciding the optimal time to pay a sunk cost in return for a project of a certain value. Pindyck [36] and Rodrick [37] argued that, for some establishments, the firm could not disinvest should market condition change adversely, and this could increase uncertainties for the potential investors. Policy uncertainty was also considered as an important determinant of private investment. When a policy reform is introduced, it is very unlikely that the private sector would see it as one hundred per cent sustainable, and therefore, it may not lead to more investment. Real option approach advocates for consistency in macroeconomics policies such as monetary and fiscal policies in order to eliminate any uncertainties that may be prohibitive to the private investment.

3.3 Empirical Review

Omojolaibi, Okenesi and Ekundayo [38] examined the nexus between fiscal policy and private investment in five selected West African countries using annual data from 1993 to 2014. Employing Fixed Effect Model for Panel data ordinary least square approach, the results showed the existence of a significant crowding in effect of government capital expenditure and tax revenue while non-tax revenue showed a crowding out effect. Recurrent expenditure and external debt also showed crowding out effects but these were insignificant. The accelerator effect of output growth was also found to be insignificant across the countries over the time period.

Awode [9] investigated fiscal policy management and private investment in Nigeria: Crowding-Out Or Crowding-In Effect? The study tries to find out whether there exists a crowding-out or crowding-in effect of fiscal policy on private investment in Nigeria between 1987 and 2015. Secondary time series data were used for the study and these were sourced from CBN statistical bulletin and World Development Indicators, 2015. The data collected were analyzed using the Autoregressive Distributed Lag with inferences drawn at 5% significance level. The result showed that inflation, capital expenditure, indirect tax and non-tax revenue had positive and significant effects on private investment in Nigeria while domestic credit to private sector had negative but significant effect on private investment in Nigeria within the period. The study concluded that a crowding-in relationship exists between capital expenditure and private investment, while indirect tax revenue has significant and non-distortionary relationship with private investment.

Menjo, and Kotut [39] explored the effects of fiscal policy on private investment and economic growth in Kenya, the study uses a time series data from 1973 to 2009, the choice of the study period was informed by availability of data and the magnitude of the problem on the study period. We adopted two stage instrumental variable estimation methods to perform our regression analysis because of its adaptability. The results indicate that fiscal policy impacts on investment and investment plays a major role in the determination of the economic growth in Kenya.

Omorokunwa and Ajao [40] did a study on the effect of fiscal policy on public-private investment was examined in Nigeria from 1981 to 2016 using the ARDL technique. The results showed that expenditures tend to exert positive impact on investment in both the short-run and long-run with a weak negative influence. The policy implication of the findings is that fiscal policy needs to look more inwards in terms of a long-term expansion of investment in the country. Continued focus on external financing for long-run investments can create inter temporal instability in investment in Nigeria.

Dantama and Gatawa [15] studied the long run impact of fiscal deficit on private investment employing annual time series data covering the period of 1980 to 2014. A modeling approach that incorporates ADF and PP for unit root test, Johansen cointegration test and Error Correction Model (ECM) were employed. The unit root test revealed that both the series exhibit unit root at the level value and became stationary after differencing of order one that is I(1) while the result of Johansen suggest one coingration vector at 5% significant level. The ECMt-1 result indicates that 38% numbers of errors have been corrected from short run adjustment to the long run. It further proves that a unit increase in fiscal deficit, government revenue and exchange rate crowd in private investment by 0.0003, 0.276 and 0.205 respectively while a unit increases in government expenditure crowd out private investment by -0.570 percent in the long run.

Bello, Nagwari and Saulawa [41] uses multiple regression analyses to investigate the extent to which government spending crowd in or crowd out private investment in Nigeria. The analysis is conducted using 34 years of annual data for Nigeria. The paper lays emphasis on disaggregating the capital and recurrent spending of the federal government and examining their separate effect on private investment. The analysis suggests that effective macroeconomic management be ensued in order to cushion the adverse effect of rising inflation on private investment.

Marratin and Salotti [42] conducted a study on the relationship between fiscal policy and private investment of 14 EU countries and found that state expenditure shocks have positive effect on private investment. The study suggested that remuneration-related public expenditure has a relatively higher stimulating effect, whereas government investment has no stimulating effect on private investment.

Abata, Kehinde and Bolarinwa [43] assessed how fiscal and monetary policies influence economic growth and development in Nigeria. From the result there exist a mild long-run equilibrium relationship between economic growth and fiscal policy variables in Nigeria. The study suggests that for any meaningful progress towards fiscal prudence on the part of Government to occur, some powerful pro-stability stakeholders strong enough to challenge government fiscal recklessness will need to emerge.

Isaac and Samuel [12] investigated the effects of fiscal policy on investment and economic growth in Kenya, the study used a time series data from 1973 to 2009. They adopted two stage instrumental variable estimation method to perform the regression analysis because of its adaptability. The results indicate that fiscal policy impacts on investment and investment plays a major role in the determination of the economic growth in Kenya. They recommend that the following three measures can be adopted accordingly: re-examination of government spending to eventually make it complementary to investment, channeling more credit to the private sector and finally designing appropriate policies that deal with the current high domestic public debt and budget deficit.

Sineviciene and Vasiliauskaite [44] analysed the relationship between fiscal policy and private investment in the Baltic States of Estonia, Latvia and Lithuania. The study showed that from the tax revenue side, the strongest relationship exists between the current taxes on income, wealth and private investment. Analysis of fiscal policy indicators interaction with private investment from the government expenditure side showed the existence of strongest relationship between public and private investment thereby leading to suggestions that fiscal policy indicators explain fluctuations in private investment in the Baltic States.

Nathan [13] evaluates the causal relationship between money supply, fiscal deficits and exports as a means of analyzing the impact of fiscal policy on the growth of the Nigerian economy between 1970 and 2010. The research employed the Co-integration Error Correction Mechanism (ECM), a two band recursive least square to test for the stability of the Nigerian economy as well as determine the effect of money supply, fiscal deficits, and exports on the relative effectiveness of fiscal policies in the Nigerian economy. The study reveals that there is a significant causal relationship between gross domestic product (GDP) and the variables used in this research. They also concluded that there was a significant causal relationship between exports and gross domestic product and hence fiscal policies. Conclusively, on the whole, they recommend that fiscal policies have a significant influence on the output growth of the Nigeria economy.

Malik [4] examined linear as well as non-linear impact of fiscal policy variables on private

investment in Pakistan from 1972 to 2009 using time series data. The results imply that it's better to examine different aspects of fiscal policy instead of fiscal policy variables in aggregate form as the impact of fiscal policy variables in aggregate and disaggregate form do not comply with each other. Different categories of expenditures and revenues have different impact on private investment. Secondly, in most of the cases there exists a non-linear relationship, which implies the significance of certain threshold level for the different fiscal policy instruments to encourage private investment.

Okoro [16] investigated the impact of government spending on the Nigerian economic growth from 1980 to 2011. Employing the ordinary least square multiple regression analysis to estimate the model specified. Real Gross Domestic Product (RGDP) was adopted as the dependent variable while government capital expenditure (GCEXP) and government recurrent expenditure (GREXP) represents the independent variables. With the application of Granger Causality test, Johansen Co-integration Test and Error Correction Mechanism, the result shows that there exists a long-run equilibrium relationship between government spending and economic growth in Nigeria.

Oyeleke and Ajilore [45] investigated the sustainability of fiscal policy in Nigeria over the period of 1980-2010 to determine whether or not the government has violated intertemporal government budget constraint. Using error correction method of analysis, the study revealed that fiscal policy was weakly sustainable in the economy of Nigeria. This study therefore recommends that government should improve on her tax revenue generation and other source of income but limit her expenditure to growth enhancing projects.

Agu et al. [14] examined the impact of various components of fiscal policy on the Nigerian economy from 1961 to 2010. Descriptive statistics was used to show contribution of government fiscal policy to economic growth. An OLS in a multiple form was used to ascertain the relationship between economic growth and government expenditure components after ensuring data stationarity. Findings revealed that total government expenditures have tended to increase with government revenue, with expenditures peaking faster than revenue. Investment expenditures were much lower than recurrent expenditures evidencing the poor growth in the country's economy. Hence there is some evidence of positive correlation between government expenditure on economic services and economic growth. An increase in budgetary allocation to economic services will lead to an enhancement in economic stability.

Njuru et al. [46] investigated the impact of taxation on private investment in Kenya. Vector auto-regression technique was used to achieve study objectives. Time series research design was used covering period 1964-2010. The study found that VAT, income tax and establishment of Kenya Revenue Authority (KRA) had negative impact on private investment while excise tax, import tax and tax amnesty impacted positively on private investment. The study concludes appropriate tax system and progressive tax reforms are necessary to ensure that private investors are given enabling environment to establish.

Argimón, González-Páramo, and Roldán (50) searched for the relationship between government spending and private investment by using a panel data of 14 OECD countries. Their findings indicated that government investment leads to a significant crowding-in effect on private investment by creating the positive impact of infrastructure on private investment productivity. According to them, these findings become more important, in particular, when the fiscal consolidation comes into the agenda. The policies of deficit reduction carried out through cuts in government investment, for this purpose, could trigger a negative effect on capital accumulation as well as growth prospects.

Voss [17] explored the short- and long-term interactions between government investment and private investment with reference to Canada and the USA in 1947:Q1-1988:Q1 period by using VAR analysis based on Jorgensen's Neo-classical model of investment. He demonstrated that there is no evidence of crowding-in due to complementarities between government and private investment in both the USA and Canada. His findings, on the contrary, suggested that innovations to government investment tended to crowd-out private investment.

Another study done by Afonso and Aubyn [47] also used a VAR model but for 14 EU countries, Canada, Japan, and the USA for the sub-period of 1960-2005. Their empirical findings indicated that both government and private investments have a positive effect on output; whereas, government investment crowds-out private

investment in a significant number of countries. On their findings, they argued that government investment can either crowd-in or crowd-out private investment. In strong crowding-out cases, it is possible that an increased government investment could lead to a decrease in GDP. Besides, government investment had a contractionary effect on output in the cases of Belgium, Ireland, Canada, the UK and the Netherlands with positive government investment impulses, creating a crowding-out effect. On the other hand, expansionary effects and crowding-in prevailed in the cases of Austria, Germany, Denmark, Finland, Greece, Portugal, Spain and Sweden.

Ahmed and Miller [48] implemented three different econometrical methods including Lagrange-multiplier test, Random-effect model, and OLS for 39 developed and developing countries for the 1975-1984 period. Based on their empirical findings, they showed that government spending related to transport and communication crowds-in private investment in developing countries. Openness has a significantly positive effect on investment only in developing countries while it does not have any significant effect on investment in developed countries. As just noted above, however, spending on transport and communication crowds-in private investment in developing countries only. Contrary to spending on transport and communication, government spending on social security and welfare, regardless of either tax financed or debt financed, crowd-out investment in both developed and developing countries.

4. METHODOLOGY

The study used secondary data sourced from Central Bank of Nigeria Statistical Bulletin from 1986 to 2019.Vector Autoregressive Estimatesand structural analysis was employed in the study in order to explore the causal relationship between fiscal policy and private investment in Nigeria.
In order to achieve the objective of the study, the model from the work of Awode [9] who investigated fiscal policy management and private investment in Nigeria: Crowding-Out Or Crowding-In Effect?.

The model used was:

PI= f(INF,DCP,FIS)
Where PI= Gross fixed capital formation
INF= is inflation rate
DCP= Domestic credit to private sector
FIS= Fiscal policy variables (capital and current expenditure, direct and indirect tax, non tax revenue)

To capture the specific characteristics of Nigerian economy the variables were aggregated together and the model was modified to

PI=f(TR,OIL,EXP,PD)
Where PI = Private investment (proxy by gross fixed capital formation)
TR= Tax revenue
OIL= Oil revenue
EXP=Total expenditure
PD= Public debt

The first step in this analysis is to describe the variables used in the study before we proceed to carry out stationarity test. Stationarity test was conducted using ADF test and PP test. The result of the ADF and PP test is shown in Table 2 to 5.

5. RESULTS AND DISCUSSION

The characteristics of the data series used in the analysis are presented in Table 1. The table shows the summary of descriptive statistics used in the analysis. The mean value was shown to be 1703167 for PI, 1698.472 for TR, 2339.396 for GEXP, 5241.049 for PD and 2786.495 for OIL. The median value was shown to be 184360.2 for PI, 644.8500 for TR, 1122.085 for GEXP, 3595.325 for PD and 1890.920 for OIL. The maximum and minimum of the series are 13593779 and 5320.000for PI, 5320.000 and 4.490000 for TR, 9714.840 and 16.22000 for GEXP, 23295.06 and 69.89000 for PD, 8878.970and 8.110000 for PDGDP. The series standard deviations are 3459167 for PI, 1889.729 for TR, 2595.948 for GEXP, 6014.662 for PD, 2742.533 for OIL. The higher value of standard deviations which is greater than the mean indicates that the data set is very widely distributed with a strong positive skewness.

Table 2 revealed that none of the variables were stationary at level Based on this we difference the variable to see the outcome.

Table 3 revealed that GEXP and PD were not stationary at level but PI,TR and OIL were stationary at level. Based on this we difference the variable more to see the outcome.

From the result of ADF test shown in Table 4 it shows that PI, TR, GEXP, PD and OIL are

stationary at 2nd difference. This shows that the variables used in the study are integrated in order1(2). In other to confirm the stationnarity of the variables the study also adoptedPhillips-Perron (PP) unit root test at intercept.

Phillips-Perron (PP)unit root test in Tables 5 to 7 proves that none of the variables were stationary at level but some were stationary at 1st diff and 2nd diff hence the application of Vector Autoregressive Estimates in the analysis of the variables.

The co-integration test is used in the determination of the long-run relationship that exists between variables. Table 8 shows that long-run relationship (co-integration) exists among the variables. There is three cointegrating equation which is PI, TR and GEXP in the model. This is reflected in the trace statistic of Table 8 which shows a value greater than that of the 5% critical value respectively. With the existence of long run relationship, there is need to analyze normalized long run coefficients based on Johansen test. The result of the normalized coefficients shown in Table 9 shows a long-run effect between fiscal policy and private investment in Nigeria.

Table 1. Descriptive Statistics

	Mean	Median	Maximum	Minimum	Std.Dev	Obs
PI	1703167	184360.2	13593779	7323.000	3459167	34
TR	1698.472	644.8500	5320.000	4.490000	1889.729	34
GEXP	2339.396	1122.085	9714.840	16.22000	2595.948	34
PD	5241.049	3595.325	23295.06	69.89000	6014.662	34
OIL	2786.495	1890.920	8878.970	8.110000	2742.533	34

Source: Output Data from E-views 9.0

Table 2. ADF Result at Level

Variables	ADF Test Statistic	1%	5%	10%	Order of Integration
PI	-2.333390	-3.646342	-2.954021	-2.615817	Nonstationary
TR	0.232746	-3.646342	-2.954021	-2.615817	Non-stationary
GEXP	4.601766	-3.646342	-2.954021	-2.615817	Nonstationary
PD	4.590860	-3.646342	-2.954021	-2.615817	Nonstationary
OIL	-1.366666	-3.646342	-2.954021	-2.615817	Non-stationary

Source: Researcher's E-view result

Table 3. ADF Result at First Difference

Variables	ADF Test Statistic	1%	5%	10%	Order of Integration
PI	-5.797915	-3.653730	-2.957110	-2.617343	Stationary
TR	-4.662878	-3.653730	-2.957110	-2.617343	Stationary
GEXP	-2.165347	-3.653730	-2.957110	-2.617343	Non-stationary
PD	-2.023906	-3.653730	-2.957110	-2.617343	Non-stationary
OIL	-5.915897	-3.653730	-2.957110	-2.617343	Stationary

Source: Researcher's E-view result

Table 4. ADF Result at Second Difference

Variables	ADF Test Statistic	1%	5%	10%	Order of Integration
PI	-9.762434	-3.661661	-2.960411	-2.619160	Stationary
TR	-7.584113	-3.661661	-2.960411	-2.619160	Stationary
GEXP	-9.705524	-3.661661	-2.960411	-2.619160	Stationary
PD	-5.909913	-3.661661	-2.960411	-2.619160	Stationary
OIL	-8.478607	-3.661661	-2.960411	-2.619160	Stationary

Source: Researcher's E-view result

Table 5. PP Result at Level

Variables	ADF Test Statistic	1%	5%	10%	Order of Integration
PI	-2.358615	-3.646342	-2.954021	-2.615817	Non-Stationary
TR	0.131345	-3.646342	-2.954021	-2.615817	Non-stationary
GEXP	3.823243	-3.646342	-2.954021	-2.615817	Non-stationary
PD	4.590860	-3.646342	-2.954021	-2.615817	Non-stationary
OIL	-2.615817	-3.646342	-2.954021	-2.615817	Non-stationary

Source: Researcher's E-view result

Table 6. PP Result at First Difference

Variables	ADF Test Statistic	1%	5%	10%	Order of Integration
PI	-6.729424	-3.653730	-2.957110	-2.617343	Stationary
TR	-4.662878	-3.653730	-2.957110	-2.617343	Stationary
GEXP	-2.335923	-3.653730	-2.957110	-2.617343	Non-stationary
PD	-2.023906	-3.653730	-2.957110	-2.617343	Non-stationary
OIL	-6.002748	-3.653730	-2.957110	-2.617343	Stationary

Source: Researcher's E-view result

Table 7. PP Result at Second Difference

Variables	ADF Test Statistic	1%	5%	10%	Order of Integration
PI	-25.39349	-3.661661	-2.960411	-2.619160	Stationary
TR	-7.801648	-3.661661	-2.960411	-2.619160	Stationary
GEXP	-9.631018	-3.661661	-2.960411	-2.619160	Stationary
PD	-8.331237	-3.661661	-2.960411	-2.619160	Stationary
OIL	-11.99085	-3.661661	-2.960411	-2.619160	Stationary

Source: Researcher's E-view result

Note: Standard errors in ( ) and t- statistic in [ ].** implies significant at 1% level of significant. In long run tax revenue and public debt have positive effect on private investment while government expenditure and oil revenue have negative effect on private investment. The coefficients of TR, GEXP and OIL are statistically significant at the 1% level.

Conclusion: The null hypothesis of no cointegration is rejected against the alternative of cointegrating relationship in the model. The non-stationary of data series and the cointegration of the vector variable in the equations lead to the execution of the second phase of Vector Autoregression Estimates (VAR).

The result from Table 10 shows that PI, TR, GEXP and PD have positive effect on PI while OIL has negative effect on PI. A one percent change in one year lag of PI, TR, GEXP and PD will results to a positive change in PI by 0.61 percent, 9370.6 percent, 3543.4 percent, and 109.7 percent respectively. On the other hand, a one percent change in one year lag of OIL will results to negative change in PI by -2782.1 percent. On the performance of the individual variables, the results reveal that only one year lag of PI, TR and GEXP are statistically significant given the high values of their t-statistics.

The adjusted R-squared value of 0.744% indicates that, about 74.4% of the variations in PI is explained by the combined effect of the independent variables. It also implies that the model has good fit in explaining the relationship. Similarly, the F-statistic which measures the overall significance of the model showed a high value of 10.03741 which indicates that the effect of fiscal policy on private investment is statistically significant in Nigeria.

Variance decomposition was used in this study to show which of the fiscal policy variables which most influences private investment in Nigeria. The result from variance decomposition estimates of PI in Table 11 shows that tax revenue shock explains about 24% of the variation in PI in the 10th period. This is followed

by government expenditure, oil revenue and public debt which explains about 16.4%, 12.2% and 11.7% changes in PI in the 3rd,4th and 6thperiod respectively, while about 52.7% of future changes in PI are explained by present PI.

The result of granger causality test in Table 12 indicates that there is unidirectional causality between private investment and tax revenue with causation moving from private investment to tax revenue. Table 12 also shows a bilateral causality between government expenditure and private investment. Equally the granger causality test shows that there is unilateral causality between oil revenue and private investment with causation moving from oil revenue to private investment. Results from causality test shows that government expenditure on infrastructure will help in the growth of the private sector which invariable will help ensure increase in government tax revenue.

Table 8. Presentation of Johansen co-integration result

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.887463	156.0558	69.81889	0.0000
At most 1 *	0.847057	88.33725	47.85613	0.0000
At most 2 *	0.451127	30.12892	29.79707	0.0458
At most 3	0.264815	11.53242	15.49471	0.1808
At most 4	0.062352	1.995804	3.841466	0.1577

Trace test indicates 3 cointegratingeqn(s) at the 0.05 level
** denotes rejection of the hypothesis at the 0.05 level*
***MacKinnon-Haug-Michelis (1999) p-values*

Table 9. Normalized long-run coefficient based on Johansen test

	Dependent Variable PI			
PI	**TR**	**GEXP**	**PD**	**OIL**
1.000000	-7290.098	6017.847	-313.6184	346.2623
	(617.992)	(575.804)	(76.2155)	(180.361)
	[-11.7964]	[10.4512]	[-4.1148]	[1.9198]

Source: Output Data from E-views 9.0

Table 10. Results of Vector Autoregressive Estimates Normalised on PI

Parameters	Coefficient	Standard Error	t-statistic
PI(-1)	0.619951	0.26055	2.37942
TR(-1)	9370.699	3058.17	3.06416
GEXP(-1)	3543.490	1633.17	2.16970
PD(-1)	109.7454	641.433	0.17109
OIL(-1)	-2782.186	1432.59	-1.94207
C	139767.1	600239	0.23285

Source: Output Data from E-views 9.0
Adjusted R-squared = 0.74; F-Statistic = 10.03741

Table 11. Variance decomposition of PI

Period	S.E.	PI	TR	GEXP	PD	OIL
1	1789721.	100.0000	0.000000	0.000000	0.000000	0.000000
2	2786119.	52.75199	14.06157	19.07357	2.734488	11.37839
3	3012879.	46.79895	23.59674	16.46140	3.363388	9.779520
4	3172816.	44.77025	22.59975	15.00471	5.382201	12.24308
5	3459876.	46.79172	19.86118	12.61824	9.105957	11.62289
6	3662937.	47.54084	18.38011	11.49928	11.78258	10.79720
7	3825772.	48.21778	18.85922	11.30499	11.71650	9.901511
8	4017999.	48.92791	19.78304	11.50612	10.62471	9.158222
9	4301804.	49.37992	21.81569	10.95837	9.599167	8.246848
10	4682325.	49.41966	24.01850	10.05808	9.089570	7.414196

Source: Output Data from E-views 9.0

Table 12. Granger Causality Test

Null Hypothesis:	Obs	F-Statistic	Prob.
TR does not Granger Cause PI	32	2.89507	0.0726
PI does not Granger Cause TR		4.54090	0.0200
GEXP does not Granger Cause PI	32	4.41025	0.0220
PI does not Granger Cause GEXP		14.5144	5.E-05
PD does not Granger Cause PI	32	0.00996	0.9901
PI does not Granger Cause PD		3.08321	0.0622
OIL does not Granger Cause PI	32	3.97121	0.0308
PI does not Granger Cause OIL		2.56530	0.0955

Source: Output Data from E-views 9.0

6. CONCLUSION AND POLICY IMPLICATION

Private investment provides about 90% of employment in the country both in formal and informal sectors of the economy. Nigeria unemployment rate has been increasing that is why World Bank report [11] refers to Nigeria as the poverty capital of the world. Some studies have shown that the only way for Nigeria to reduce its unemployment rate is to encourage the growth of private sector but yet government has refused to unbundle some of the critical sectors of the economy like power and NNPC. Instead they have increased its expenditure on these sectors e.g the recent award of $1.5 billion contract by the federal government for the rehabilitation of moribund Port Harcourt refinery. Results from these studies are contradictory as such the study tends to find out the causal relationship between fiscal policy and private investment in Nigeria from 1986 to 2019. Descriptive statistics was used to explain the characteristics of the data series, thereafter that the unit root status of the variables was established and was discovered to be intergrated at order I(2).This necessitated the use of Vector Autoregressive Estimates (VAR) models in the study since the study investigates the causal relationship, granger causality will be used as method of data analysis.The result of the analysis shows that causal relationship exist between fiscal policy and private investment in Nigeria within the period of the study and is consistent with the study of Omojolaibi, Okenesi and Ekundayo [38], Awode [9], Menjo, and Kotut [39], Dantama and Gatawa [15]. The study therefore agrees that fiscal policy crowds in private investment in the country and effort should be made by the government to privatize the remaining agency of the government. The study is anchored on real option approach which believes that Policy uncertainty affects private investment.

Private investment which will see the reduced role of government in the economy has been argued to help reduce unemployment and poverty in the economy. Despite the importance of private sectors in the economy, the federal government has refused to fully privatize the critical sectors of the economy as such the study makes the following recommendations; Government should as necessity fully liberalized or privatized NNPC and the Power sector as these critical sectors will help the growth of the private sectors and reduce unemployment in the country. Secondly, Government ought to increase its spending on infrastructure, especially capital projects in the economy in order to bridge infrastructure gap in the country. Thirdly, Provision of tax incentives to private sectors by the Government should be encouraged, as this will help the growth of private investment in the country. Also, Government should only take debt when necessary and it must be tied to a project. Again, Government should ensure that the fund borrowed will be spent on the specified project and not diverted to other uses or for payment of salaries. Also, restructuring of the economy by manufacturing what we needs should be encouraged by the government because exporting commodity means exporting jobs. In addition, encouragement of trade among us is requisite because the local investors are the ones to attract the foreign investors in the country. Lastly, we should have policy consistent and fight corruption.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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