ARMG Publishing "Thinking ahead" sciendo
Financial Markets, Institutions and Risks, Volume 6, Issue 3, 2022
ISSN (online) – 2521-1242 ISSN (print) – 2521-1250

Exchange Rate Policy Regimes, Private Investment Behaviour and Economic Growth in Nigeria (1960 -2020)

http://doi.org/10.21272/fmir.6(3).105-115.2022

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Type of manuscript: research paper

Abstract. *To improve economic growth acceleration, the Nigerian government should continue to formulate and implement several policies including exchange rate policy regimes. Exchange rate policy regime of any government could be a fixed exchange rate regime when the price of a country's currency in terms of another country's currency is fixed to a value by the monetary authority; it could be a floating regime when the price of a country's currency in terms of another country's currency is left to be determined by the forces of demand and supply, while a managed-floating regime is undertaken when there is an element of both fixed and floating regimes. Following the Barro (1990) theoretical framework, this study attempted to assess the effects each exchange rate regime has on the economy through the mechanism of private investment spending. The researcher carefully selected macroeconomic variables that have been considered in the econometric models for empirical analysis of the research study in this dissertation through statistical estimation techniques as guided by Barro (1990) and international studies, specifically that of Sahoo et al., (2012), in this area of study. These variables include GDP as an indicator for economic growth, Private capital, private sector credit, real exchange rate, interest rate, government capital expenditure, trade openness, exchange rate regimes dummies, total employment, and spending on health and education. Specifically, the study set out to empirically quantify the impact of both fixed and floating regimes on private investment spending and in turn, on economic growth in Nigeria.Through this study, the key determinants of private investment spending and economic growth in Nigeria. To achieve the study's objectives and address the respective research questions, preliminary examinations of the data were conducted through the use of visual and unit root tests and some of the variables were found to be stationary at levels (i.e., $I(0)$) while some are stationary in their first differences (i.e., $I(1)$). The study proceeded to estimate both private investment and economic growth models simultaneously using Two-Stage Least Squares (TSLS) method.*

Keywords: *Exchange rate regimes, Private investment spending, Economic growth, Fixed, Floating, Managed-floating, Two-Stage Least Squares (TSLS).*

JEL Classification: *J16, G21, G12.*

Received: 29.06.2022 **Accepted:** 06.09.2022 **Published:** 30.09.2022

Funding: There is no funding for this research.

Publisher: Sumy State University.

Cite as: Popoola M.A., Ajayi, J.O. & Abiodun, T.S. (2022). Exchange Rate Policy Regimes, Private Investment Behaviour and Economic Growth in Nigeria (1960 -2020). *Financial Markets, Institutions and Risks*, *6*(3), 105-115. http://doi.org/10.21272/fmir.6(3).105-115.2022

Introduction

Many researchers held opinion that the achievement of growth in Africa will require, among other things, an increase in investment, which will have to come primarily from the private sector if growth is to be efficient and sustained (Khan and Reinhart 1990). However, recent theoretical and empirical studies tend to suggest that reviving private investment may proof difficult unless concerted efforts are made towards restoring consistency and stability in macroeconomic policy environment of business (Pindyck 1991). One major channel through which private investment could be improved and sustained is an effective exchange rate policy regime. Investment spending plays a significant role in explaining economic performance. Indeed, high rates of investment have been associated with higher economic growth (Barro, 1991; Collier and Gunning, 1999; Madsen, 2002). However, the level of investment in most African countries is insufficient to promote development. This is the case in Nigeria where investment rates are abnormally low and declining. Between 1970 and 2001, for example, the gross investment rate was, on average, equal to 10.4% of gross domestic product (GDP) and private investment averaged only 6.6%. In this context, Akintoye and Adesola (2004) show that the weakness of capital accumulation in Nigeria during the 1990s contributed to output losses estimated at 3.9% of GDP per year.

Reference to neoclassical theory, investment spending depends on the cost of capital which in turn is affected by real interest rate and tax rate (Jorgenson, 1963). In this setting, economic policies can achieve higher investment rates by lowering interest rate and by providing fiscal incentives. While these policies were carried out in Nigeria since the early 1960s, they did not allow increasing investment rates. So, it appears that there are other factors which depress capital spending in this country. Abdaziz,Ibnu and Zainuddin (2016) revealed that investment and working capital, labour intensive and prospective market are potential to economy. Basic question borders on the appropriate exchange rate regime that stimulates investment, which will in turn, spur the level of economic growth in Nigeria. If, by international trade theory proposition (and given the encouraging results of cross-country regression analyses), floating exchange rate regime is optimal, why is Nigeria re-introducing different exchange rate policies and what are the implications of such policy shift for capital accumulation

Structural Adjustment Programme (SAP) success in bringing about a sustainable recovery in economic activity in a given economy depends crucially on the behaviour of investment in the aftermath of the reform process. In other words, one of the most important factors determining the potential success of reform programmes is the extent and pace at which private investment responds to the policy changes. Since the expansion of public investment is usually constrained as part of fiscal austerity measures embodied in a SAP, the required recovery of investment has to come largely from the private sector. The behaviour of private investment has therefore been a major focus of attention in assessing the reform outcome. The existing evidence across a wide spectrum of developing countries generally points to a decline or stagnation of private investment during the immediate post-reform years (World Bank, 1988; Harrigan and Mosley, 1991; Greenaway and Morrissey, 1992; Gunning, 1994; Collier, 1995; Dehn, 2000; Lemi and Sisay, 2001).

Attention has been focused majorly on the traditional determinants of private investment such as output, relative prices, and credit/liquidity and so on. It is interesting to note that domestic credit to the private sector has continued to expand, and relative prices tend to favour investment in such sectors as agriculture and manufacturing. However, the expected investment associated with such favourable environment has been elusive. It seems that some other factors are driving the response of the private sector to investment spending beyond relative prices and current profitability. It is then important to examine the perception of the private sector regarding the credibility of the exchange rate policy measures. This may well explain why, despite the far-reaching reforms implemented, private investment has responded unimpressively. For policy purposes, then, it is important to know how private perception of exchange rate policy reform affects investment. This will help in the design of more appropriate strategies to stimulate private investment.

Also, this study will attempt to investigate the impact of exchange rate policy regimes on private investment behavior, and hence, on economic growth in Nigeria over a sample period of 1960-2020.

1. Stylized Facts on Macroeconomic Policy Environment, Investment Behaviour and Economic Growth in Nigeria: 1960-2015

The Early Years: 1960-1972. At the end of 1960, gross capital formation (GCF) in Nigeria stood at N258.2 million of which the private sector accounted for N135.2 million or about 52.0 per cent of total GCF. By

ISSN (online) – 2521-1242 ISSN (print) – 2521-1250

1963, out of the total GCF of N354 million, the private sector accounted for about N227.2 million or 64.0 percent of total. Within this time frame, the role of the public sector in economic activity was minimal. This was a carry-over effect of the colonial era where the government concentrated more on governance and security. Real GDP which stood at N1962.6 million in 1960 rose to N2243.0 million in 1963 which represents an increase of over 14.0 percent. Over the years, a key factor to the erratic economic performance of the Nigerian economy had been the behaviour of aggregate investment expenditures (Uchendu, 1993).

In the early 1970s, the positive external shocks in the form of increased oil prices generated massive savings and created investment booms (Ikhide, 1994). Investment expenditure when measured in current prices increased at an annual average rate of 55.0 percent between 1970 and 1975. In the 1960s the government encouraged domestic banks to give a larger proportion of their domestic credit to domestic firms. Hitherto, credit to firms was largely externally financed. It was in 1963 that the government itself expanded rapidly its domestic credit. Between 1963 and 1966, nominal GDP rose from N2745.8 million in1963 to N3374.8 million in1966; while real GDP rose from 2825.6 million Naira to 3044.8 million Naira (at 1962 factor cost). The evidence shows that real GDP grew by about 8.0 percent between 1960 and 1966 while total GCF rose from N354 million in 1963 to N485.2 million in 1966.

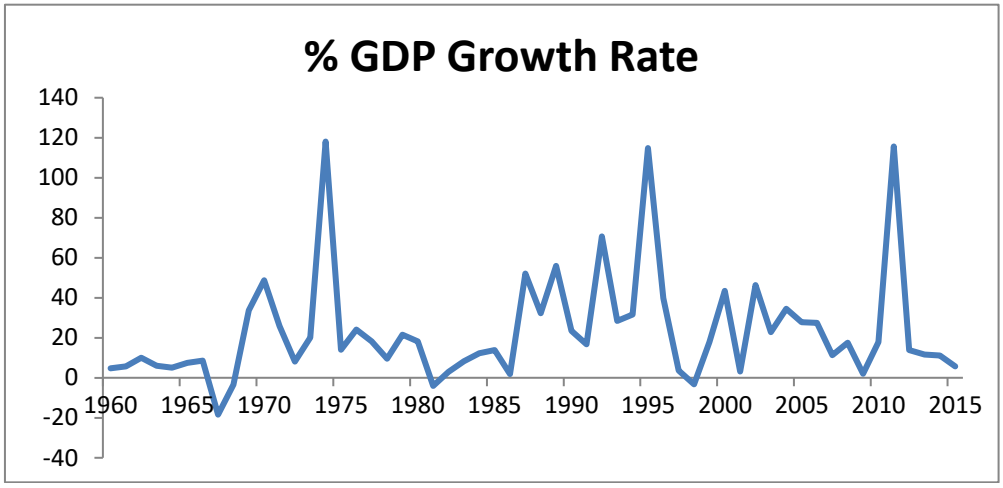

Figure 1. Nigerian GDP Growth Rate, 1960 – 2015

Source: Generated by the researcher, CBN data.

The Oil Boom Era: 1973-85. Many significant events before 1985 affected the economy and most especially investment spending, none more importantly than the management of oil revenues (Omoruyi 1995). The positive oil shocks of 1973/74 and 1979 multiplied the terms of trade more than five times between 1973-81 (World Bank, 1993). The spending of the oil revenue drove real per capita income in 1987 prices up from 1,300 Naira in 1972 to nearly 2,900 Naira in 1980 (in current US$ of the time, from US$ 280 to US$ 1,100). The positive oil shocks generated massive savings and created investment booms. Investment expenditure when measured in current prices increased at an annual average rate of 53.0 percent between 1970 to 1975 period but the highest rate of growth was attained between 1974 and 1975 when capital formation reached a peak growth rate of 74.1 percent within a single year. The oil windfalls of the 1970s changed the sectoral composition of the GFCF in favor of the government. The government increased participation in the economy based on the belief that industrialization is the engine of economic growth, and key to transforming the traditional economy. The view was made possible because government was the major beneficiary of the windfall. Various five-year development plans were drawn, and they emphasized investment in large (state run) projects.

The Reform Era: 1986-2015. The fall in oil revenue between 1980 and 1986 left the economy with a highly capital-intensive production structure that cannot pay for new, higher level of imports. Misallocation of resources in agriculture also included the construction, but not completion, of huge irrigation dams, which drew capital into agriculture, but produced few production benefits. In response to these distorted domestic terms of trade, the government engaged in fertilizer and interest rate subsidies. Market interest rates were pegged below their equilibrium rates. With further collapse in oil prices in 1986, the government adopted a far-reaching economic reform programme which combined exchange rate and trade policy reforms aimed at

revitalizing the non-oil economy with stabilization policies designed to restore price stability and balance of payments equilibrium (Emenuga, 1996; Uchendu, 1993).

2. Literature and Empirical Review

Theoretical Review

Growth theory

Neo-classical economic growth. To being with, classical economic mainly focused on capital accumulation, but disregarded the role of technology, until the revolutionary work of Solow (1956, 1957) and swan (1956) was developed a formal model , in the neoclassical tradition , that describes the path of important economic variable over time , such as per capital . Two key features of the conceptual structure of neoclassical growth theory are important. First, it is based on "the production function approach to the analysis of economic growth" (Thirlwall, 2005, p.140). It is based on an aggregate production function which expresses the relationship between aggregate output, on the other hand, and stocks of inputs and their productivity, on the other. Second, the neoclassical model is designed to show the long-run equilibrium growth rate with all resource inputs fully employed and returns to capital and labour equal to their marginal productivity. The main outcome of this model is that the growth rate declines as the economy evolves toward its steady state, where income, capital and consumption per capita grow at a constant rate.

The Theory of Investment

The core (neoclassical) investment model of the firm. Our modelling approach is to start first with a theoretical model, which we call the *core model*. The core model follows the neoclassical line of thought that investment spending is determined by two broad elements: the accelerator and the user cost of capital effects (see, for example, Jorgenson, 1971; Ibarra, 1995; and Athukorala and Sen, 1996). The accelerator effect captures the relationship between capital accumulation and the rate of change of output. The user cost captures the degree of substitutability between capital and other inputs.

Using a two-factor model of investment behaviour in the tradition of the neoclassical theory – capital and labour – the firm maximizes profit subject to a technology that can be represented by a CES production function – $Y = \gamma(K^{\rho} + L^{\rho})^{v/\rho}$ (1),

where γ is the efficiency parameter, ρ is the substitution parameter and *v* is the returns to scale parameter. The desired stock of capital that results from the first order conditions can be expressed as follows: $K^* = A(Y)^{\phi} \left(\omega_k / p\right)^{-\sigma}$ (2),

where *K** is the desired capital stock, *Y* is real output, ω_k is the user cost of capital services, *P* is the output price, σ is the elasticity of substitution between capital and labour, ϕ is the elasticity of the optimal capital with respect to output, and *A* is a scale factor. The user cost of capital can be expressed as

$$\omega_k = \frac{P_k\left[\frac{(r-\pi)}{(1+\pi)} + \delta - \kappa - \tau z\right]}{(1-\tau)} \quad (3),$$

where P_k is the purchase price of a unit of new capital; *r* is the nominal financial cost of capital, usually a weighted average of the external and internal cost of funds; π is the rate of inflation; δ is the rate of depreciation of the capital stock; τ is the rate of corporate income taxation; κ is the rate of investment tax credits; and *z* is the present value of tax depreciation allowances. Taking the differential of the logarithmic transformation of Equation (3.18), and introducing costs of adjustment using a distributed lag function of the Koyck type, it is possible to get an expression that relates current investment to past investment, to rate of change of output and to the rate of change in the relative price of capital services. To transform these mathematical relations into an economic model of investment behaviour, the actual rates of variation of output and the relative price of capital services are replaced by their expected counterparts. The result is the following equation (Ibarra, 1995 and Athukorala and Sen, 1996):

$$\frac{I_t}{K_{t-1}} = \kappa_o + \kappa_1\left(\frac{I_{t-1}}{K_{t-2}}\right) + \kappa_2 E_t[\Delta ln(Y_t)] + \kappa_3 E\left[\Delta ln\left(\frac{\omega_{kt}}{P_t}\right)\right] + \varepsilon_t$$

$\kappa_1, \kappa_2 > 0;\ \kappa_3 < 0.$ (4)

ISSN (online) – 2521-1242 ISSN (print) – 2521-1250

$E_t(.)$ denotes the expectation operator applied to the information set available at the beginning of time t, which is usually proxied by an autoregressive process.

Methodological and Empirical Review

Ghosh et al., (1997) provides a descriptive analysis (means and standard-deviation comparisons across regimes) of the growth performance under alternative regimes in 145 IMF-member countries for 30 years after 1960 and found a slightly higher GDP growth under a float (1.7% under floating compared to 1.4% under a peg). The study concludes that as investment rates contributed two percentage points of GDP, then the lower output growth under a peg must be a result of a slow productivity growth. Higher productivity growth under a float also supported the growth of external trade. However, the evidence is not overwhelming.

Levy-Yeyati and Sturzenegger (2002) used many variables; population variable controls for the size of the economy, as the choice of exchange-rate regime is expected to be related to size. Specifically, the study tests the effect of hard pegs, explaining that convention pegs (which might exhibit flexibility to limited extent) may fall short of credibility and thus making the strong commitment under hard pegs necessary. Findings for developing countries are that a peg is likely to be associated with slower growth; however, the conclusion does not hold for industrial countries. Edwards and Levy-Yeyati and Sturzenegger (2002) also investigated the same issue. The first study investigated the period 1973-2000 over 183-country sample and using de-facto classification. It found that countries with fixed exchange-rate regimes have had a lower rate of per-capital growth ranging between 0.66 and 0.85 p.p per year, than compared with a flexible regime. The second study investigated the period 1970-1999 over 158-country sample using de-jure exchange-rate regimes and found that neither pegs harm growth nor flexible rates support growth. Husain et al.'s (2004) study is very weak on robustness checks.

Because of possible simultaneity between growth performance and the exchange-rate regime, Levy-Yeyati and Sturzenegger (2002) use a feasible generalized two-stage IV estimator. As instrument, they use the predicted value of the exchange-rate dummy from a formerly estimated logit model, whereby country's economic size, land area, island dummy, level of reserves and a regional exchange-rate dummy are used as regressors. Yet, the authors point out that endogeneity, if found to exist, might be weaker for growth than for inflation in respect to exchange-rate regime, due to the general inconclusiveness of the channels through which exchange-rate regime might influence growth. The findings strengthen the negative causation originating from the peg to growth, i.e. the relationship is robust to estimation allowing for the endogeneity. However, the regressors entering the logit regression might directly enter the growth regression and will simultaneously allow for correction of potential endogeneity of the other growth determinants. The latter is not assumed to be the case. The other two studies, although aware of the issue, do not allow for endogeneity in their empirical work.

The hypothesis that exchange-rate regime affects growth is investigated by Garofalo (2005) for the case of Italy over the period 1861-1998, with the same variables as in Levy-Yeyati and Sturzenegger (2002). The study used the OLS technique to estimate the specified regression and results indicate that Italy experienced the highest growth rates under some form of intermediate regime. To correct the potential endogeneity bias stemming from the direction of the link between growth and peg, Garofalo (2005) utilized two-stage IV estimation with heteroskedasticity consistent standard errors, and the estimation suggested that pegging slows growth rather than low growth suggests imposing a peg.

Dubas et al., (2005) regress per capita growth on a set of growth control variables and a set of exchange-rate dummies for 180 countries in the period 1960-2002. The study utilizes random-effects panel estimation and finds that the highest growth rates are associated with de-facto fixers, which experience, on average, 1% faster growth than de-facto floaters. The conclusion is statistically significant for the non-industrial countries only. The same conclusion applies when the exchange –rate dummies are replaced with an indicator for the exchange rate stability. However, the study does not report the coefficients on the control variables, which is important for considering if the growth model is suitable for such analysis; also, there are no robustness checks which might confirm the stability of the obtained coefficients, at least for the variable of interest. However, the study makes a pioneering approach to the issue if the distinction between de-jure and de-facto exchange-rate regime matters for growth.

Nilsson and Nilsson (2000) explore the impact of the exchange-rate regime on exports for developing countries. The argue that for developing countries, export-led growth is the spiritus movens for overall

development, on one hand, while on the other, developing countries' exporters are severely affected by exchange-rate misalignment and volatility. That is to say, they are additionally harmed as to their market power and thus motivated to change export quality.

3. Theoretical Framework, Model Specification, Data Sources and Description

Theoretical Framework

Empirical growth research has become one of the most dominant areas in macroeconomics. In most cases the growth rate of capital (in case of Solow model) or the growth rate of per capita GDP is regressed on state and control variables. To assess the impact of this state and control variables on growth we can write:

$$GR_t = f(SV_t, CV_t) \quad (5)$$

This general specification is consistent with the neoclassical growth model. In a neoclassical framework, state variables account for the initial position of the economy, whereas control variables capture differences in steady-state levels across countries. In an endogenous growth model economy is assumed to always be in its steady state, and therefore the explanatory variables capture differences in steady-state growth rates across countries.

Turning to empirical analysis, the following generic form of a growth model is used in the literature:

$$g_{i,t} = X_{i,t}\gamma + Z_{i,t}\pi + \varepsilon_{i,t} \quad (6)$$

Where $g_{i,t}$ is real per capita growth in economy i over period t. following the growth theories presented above, Barro and Sala-i-Martin (2004) suggest that real per capita GDP growth should be related to two groups of variables: initial levels of some variables, denoted $X_{i,t}$ (like the GDP itself or variables for schooling and health) and the population level or growth rate; and control variables, denoted $Z_{i,t}$ which will reflect policy actions, institutional setting or other country characteristics. The inclusion of initial values of some variables date back to Solow-Swan and Ramsely models which predict that, for a given value of these variables, an increase of initial per capita GDP or initial human capita per person, would reduce growth. That is, a richer economy tends to grow slower and vice versa. However, each economy has its own steady state, as determined by the control variables; the so – called steady level of output per "effective" worker (Barro and Sala-i-Martin, 2004, p.517). For given values of the state (initial) variables, a change in control variables (say, a change in government consumption) might hence impinge on growth.

Model Specification

The specific models to be used for this empirical analysis are:

Model 1 *(Private Capital Investment Model):*

PVT **=** *F (GDP, PSC, REXC, INT, GE, DM)*

$$PVT_t = \alpha_0 + \alpha_1 GDP_t + \alpha_2 PSC_t + \alpha_3 REXC_t + \alpha_4 INT_t + \alpha_5 GE_t + \alpha_6 DM_t + u_{1t} \quad (7),$$

where

PVT = Private Investment

GDP = Gross Domestic Product

PSC = Private Sector Credit

REXC = Real Exchange Rate

INT = Interest Rate

GE = Government Capital Expenditure

DM = Dummy Variable that represents a proxy for exchange rate regimes. ***DM*** = 0 for fixed exchange rate regime (1960-1985); and 1 otherwise (for floating regime, 1986-2020);

α_0 = Intercept Coefficient

$\alpha_1 \ldots \alpha_6$ = Coefficient of the Explanatory Variables

u_{1t} = Error Term

t = *From 1960 to 2020*

Model 2 *(Economic Growth Model):*

GDP = *F (PVT, LA, HE, IFLR, TO, DM)*

$$GDP_t = \beta_0 + \beta_1 PVT_t + \beta_2 LA_t + \beta_3 HE_t + \beta_4 IFLR_t + \beta_5 TO_t + \beta_6 DM_t * PVT_t + u_{2t} \quad (8)$$

Where:

GDP = Gross Domestic Product

PVT = Private Capital Investment

LA = Total Employment

HE = Expenditure on Health and Education

INF = Inflation Rate

TO = Trade Openness

DM = Dummy Variable that represents a proxy for exchange rate regimes. ***DM*** = 0 for fixed exchange rate regime (1960-1985); and 1 otherwise (for floating regime, 1986-2020);

$\boldsymbol{\beta_0}$ = Intercept Coefficient

$\boldsymbol{\beta_1 \ldots \beta_6}$ = Coefficients of the Explanatory Variables

$\boldsymbol{U_{2t}}$ = Error Term

t = *From 1960 to 2020*

In order to satisfy the study's broad and specific objectives, some variables in the equations above could be expressed in a natural log form as:

$$lnPVT_t = \alpha_0 + \alpha_1 lnGDP_t + \alpha_2 lnPSC_t + \alpha_3 GE_t + \alpha_4 REXC_t + \alpha_5 INT_t + \alpha_6 DM_t + u_{1t} \qquad lnGDP_t = \beta_0 + \beta_1 l\,n\,PVT_t + \beta_2 l\,n\,LA_t + \beta_3 l\,n\,HE_t + \beta_4 IFLR_t + \beta_5 TO_t + \beta_6 DM_t * lnPVT_t + u_{2t} \quad (9)$$

The expected signs of estimators are: $\alpha_1, \alpha_2, \alpha_4, \boldsymbol{\beta_1}, \boldsymbol{\beta_2}, \boldsymbol{\beta_3}, \boldsymbol{\beta_4}, \boldsymbol{\beta_5} > 0;\ \alpha_5 < 0,\ \alpha_3,\ \alpha_6, \boldsymbol{\beta_6}$ *(ambigous)*

4. Empirical Analysis and Interpretation of Results

Regression Results and Interpretations

Private Domestic Investment Model Result

$$lnPVT = 1.814 + 0.955lnGDP + 0.310lnPSC - 0.342lnGE + 0.002REXC - 0.013INT + 1.210DM \quad (10)$$

Here, the result of estimated LPVT model shown in Table 1 is presented and extensively discussed below:

- The coefficient of the log of GDP is positive which satisfies economic *apriori* expectation and its magnitude is 0.995 which implies that a 1 percent increase (decrease) in GDP will lead to about 0.995 percent increase (decrease) in PVT. Also, the coefficient is statistically significant at 5% level of significance.
- The coefficient of the log of PSC is positive which also satisfies economic *apriori* expectation and its magnitude is 0.310 which implies that a 1 percent increase (decrease) in PSC will lead to about 0.310 percent increase (decrease) in PVT. Also, the coefficient is statistically significant at 5% level of significance. Therefore, it can be observed that amongst the conventional determinants of private investment, increase in GDP and bank credits to private sector positively affect private investment spending.
- The coefficient of the log of LGE is negative but significant at 5% level of significance. Its magnitude is 0.342 which implies that a 1 percent increase (decrease) in GE will lead to about 0.342 percent decrease (increase) in PVT. Also, the coefficient is statistically significant at 5% level of significance. The implication of this is that government capital expenditure crowds-out private investment in Nigeria.
- The real exchange rate is observed to be significant but with smaller coefficients (in absolute terms). The magnitude of its coefficient is 0.002 which implies that a 1 percent increase (decrease) in real exchange rate will lead to approximately 0.2 percent increase (decrease) in private investment spending.

- The coefficient of INT shows that INT is negatively and significantly related to PVT; and that 1 percent increase (decrease) in interest rate will lead to approximately 1.30 percent decrease (increase) in private investment spending.
- From the regression results, we can see that, independent of other explanatory variables, the average value of private investment spending is about N1.814 million during the fixed exchange rate regime while the average value of private investment spending is about N3.024 million (N1.814 + N1.210) during the floating exchange rate regime. This interpretation is of course based on the fact that the coefficient of the dummy variable is statistically significant at 5% level of significance, reflecting the fact that, indeed, private investment spending is, on average, higher during the floating regime than during fixed era.
- The Adjusted R^2 of 0.9912 implies that approximately 99.1% of the total variations in PVT are accounted for by GDP, PSC, GE, REXC, INT and DM having accounted for the number of variables. This is a rather a perfect fit. The very high Adjusted R^2 informs the large value of F-stat (204.0559) indicating that all the partial slope coefficients on the explanatory variables listed above are jointly statistically significant at 1% level of significance.

Economic Growth Model Result

$$lnGDP = 26.774 + 0.326lnPVT + 1.948lnLA + 0.345lnHE - 0.002IFLR + 0.009TO + 0.036DM*\mathbf{lnPVT} \quad (11)$$

- The coefficient of the log of PVT is positive which satisfies economic *apriori* expectation and its magnitude is 0.326 which implies that a 1 percent increase (decrease) in PVT will lead to about 0.326 percent increase (decrease) in GDP. Also, the coefficient is statistically significant at 1% level of significance.
- The coefficient of the log of LA is positive which satisfies economic *apriori* expectation and its magnitude is 1.948 which implies that a 1 percent increase (decrease) in LA will lead to about 1.948 percent increase (decrease) in GDP. Also, the coefficient is statistically significant at 1% level of significance.
- The coefficient of the log of HE is positively significant at 1% level of significance. Its magnitude of 0.345 implies that a 1 percent increase (decrease) in HE will lead to about 0.345 percent increase (decrease) in GDP.
- The coefficient of IFLR shows that IFLR is negatively related to GDP; and that 1 percent increase (decrease) in inflation rate will lead to approximately 0.2 percent decrease (increase) in economic growth.
- Trade openness is posively related to GDP; its magnitude of 0.009 implies that a 1 percent increase (decrease) in TO will lead to about 0.9 percent increase (decrease) in GDP. In terms of significance, the coefficient is significant at 1% level of significance. The implication of this result is that GDP to changes in trade openness in the Nigerian economy;
- The results presented in table 1 revealed that the slope dummy is statistically significant at 5% level of significance indicating that there is a difference in the slope coefficient for different regimes. Particularly, we have that the marginal effect of private investment spending on economic growth during the fixed exchange rate regime is 0.326 while that for floating exchange rate regime is 0.362 (0.326 + 0.036). The implication of this is that as private investment spending increases (decreases) by 1 percent during the fixed exchange rate regime, GDP increases (decreases) by 0.326 percent. As for floating regime, GDP changes by 0.362.
- The Adjusted R^2 of 0.9905 implies that approximately 99% of the total variation in GDPare accounted for by PVT, LA, HE, IFLR, TO and DM*PVT having accounted for the number of variables. This is a rather a perfect fit. The very high Adjusted R^2 informs the large value of F-stat (859.4381) indicating that all the partial slope coefficients on the explanatory variables listed above are jointly statistically significant at 1% level of significance.

Table 1. TSLS estimation of the LPVT (Private Investment) Model

Dependent Variable: LPVT				
Method: Two-Stage Least Squares				
Sample: 1960 2020				
Included observations: 61				
Instrument specification: C LLA LHE IFLR TO DM*LPVT LPSC LGE REXC INT DM				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
Intercept	1.814351	3.070163	-0.590966	0.0511
LGDP	0.955363	0.769253	1.241937	0.0202
LPSC	0.310352	0.413885	0.749853	0.0462
LGE	-0.341982	0.263446	-1.298115	0.0522
REXC	0.002367	0.007458	0.317401	0.7523
INT	- 0.012928	0.026754	0.483215	0.0000
DM	1.210749	0.510284	-2.372725	0.0216
R-squared	0.996065	**Mean dependent var**		9.609195
Adjusted R-squared	0.991298	**S.D. dependent var**		3.114626
S.E. of regression	0.651116	**Sum squared resid**		20.77363
F-statistic	204.0559	**Durbin-Watson stat**		1.481857
Prob(F-statistic)	0.000000	**Second-Stage SSR**		14.490571

Source: Author's Computation from Eviews 9.

Table 2. TSLS estimation of the LGDP (Economic Growth) Model

Dependent Variable: LGDP				
Method: Two-Stage Least Squares				
Sample: 1960 2020				
Included observations: 61				
Instrument specification: C LLA LHE IFLR TO DM*LPVT LPSC LGE REXC INT DM				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
Intercept	26.77443	9.939063	-2.693863	0.0096
LPVT	0.326432	0.076002	4.295042	0.0001
LLA	1.947506	0.621151	3.135319	0.0029
LHE	0.344765	0.066524	5.182908	0.0000
IFLR	-0.002153	0.003171	-0.678915	0.5004
TO	0.008877	0.008773	1.011767	0.0166
DM*LPVT	0.036065	0.022716	1.587668	0.0288
R-squared	0.990558	**Mean dependent var**		12.47581
Adjusted R-squared	0.989402	**S.D. dependent var**		3.492786
S.E. of regression	0.359566	**Sum squared resid**		6.335085
F-statistic	859.4381	**Durbin-Watson stat**		1.329452
Prob(F-statistic)	0.000000	**Second-Stage SSR**		4.285772

Source: Author's Computation from Eviews 9.

Summary of Findings and Policy Recommendations

The significance of private sector credit corroborates the argument in the literature that credit constraint is a major constraint facing domestic firms in Nigeria. Credit to manufacturing firms has squeezed over the years because of high and variable inflation, low investment returns, and high returns from foreign exchange speculations. Granting credit to manufacturing firms is seen as less profitable and risky in an environment characterized by uncertainty and large swings in relative prices. Speculative and other short-term investment activities become more profitable. Furthermore, the results from our analyses show that a poor macroeconomic environment has significantly and negatively affected corporate investment in Nigeria. Uncertainty about the behaviour of key (relative) prices has had significant negative impact on investors' perception of government's macroeconomic policy stance. The volatility of real exchange rate arising from the rapid and variable rates of depreciation has caused significant uncertainty in the system. The study observed the negative and significant impact of volatility in interest rates. The basic implication is that volatility in key prices has been a discouraging influence on corporate investment. The macroeconomic environment has thus not been very encouraging to investors.

In terms of the practice of exchange rate policy, the results support the proposition that Nigeria has significant potential for improving domestic capital accumulation if appropriate measures are put in place. We observed the significant response of private investment to different exchange rate regimes, particularly floating exchange rate regime.

It is also observed that government capital spending crowds-out private capital spending in Nigerian economy. Government expenditures on human capital variables, especially in the area of education and health have significant impact on the performance of Nigerian economy. It is also observed that the choice of exchange rate regime has significant impact on private investment and in turn, on the performance of Nigerian economy. This is so because the result showed that the economy performs better during the floating regime than that of fixed regime. It is therefore recommended that government provide an enabling environment by formulating and implementing an appropriate exchange rate policy, particularly by embarking on floating exchange rate regime. This would free andallow the CBN to pursue other macroeconomic objectives. The level of credit to the private sector needs to be increased in order to spur the increase in private investment. It is also recommended that the Nigerian government give serious attention to the quality of education and health by increasing its spending on the two items.

Author Contributions: Conceptualization, Popoola M.A., Ajayi, J.O. & Abiodun, T.S.; **methodology**, Popoola M.A., Ajayi, J.O. & Abiodun, T.S.; **software**, Popoola M.A., Ajayi, J.O. & Abiodun, T.S.; **validation**, Popoola M.A., Ajayi, J.O. & Abiodun, T.S.; **formal analysis**, Popoola M.A., Ajayi, J.O. & Abiodun, T.S.; **investigation**, Popoola M.A., Ajayi, J.O. & Abiodun, T.S.; **resources**, Popoola M.A., Ajayi, J.O. & Abiodun, T.S.; **data curation**, Popoola M.A., Ajayi, J.O. & Abiodun, T.S.; **writing-original draft preparation**, Popoola M.A., Ajayi, J.O. & Abiodun, T.S.; **writing-review and editing**, Popoola M.A., Ajayi, J.O. & Abiodun, T.S.; **visualization**, Popoola M.A., Ajayi, J.O. & Abiodun, T.S.; **supervision**, Popoola M.A., Ajayi, J.O. & Abiodun, T.S.; **project administration**, Popoola M.A., Ajayi, J.O. & Abiodun, T.S.

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