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*Debt and Economic Development in Nigeria: Is Domestic Investment a Mediator?*

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## Debt and Economic Development in Nigeria: Is Domestic Investment a Mediator?

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*Abstract*

*This study examines the direct and indirect links of debt-economic development nexus against the backdrop of the worrisome growing dimensions of both domestic and foreign debt of Nigeria's economy. Employing Fully Modified Ordinary Least squares technique which is proven to be robust for endogeneity and heterogeneity concerns in regression and utilizing time series data spanning 1980 to 2021 in Nigeria, the study found; (1) the links between debt and economic development in Nigeria are both direct and indirect (2) exploring the direct linkage, both components of total debt (domestic and foreign) negatively influences economic development in Nigeria (3) domestic investment mediates debt-economic development relations in Nigeria in different ways depending on the sources of the debt. Increasing domestic debt positively influences economic development via enhancement of domestic investment while increasing foreign debt negatively affect economic development via the reduction in domestic investment in Nigeria (4) population growth also undermines the positive effect of domestic investment on economic development in Nigeria. From the results, the continuous fiscal deficit financing which has been mostly from foreign debt accumulation to consummate recurrent expenditure continues to undermine the attempt by Nigeria to meeting the sustainable development goals. Therefore, prudence in the management of debt and the efficient allocation of debt to capital expenditures, productive and vulnerable sectors of the economy would be needed to reap the gains of debt on economic development in Nigeria.*

*Keywords: Domestic Debt, External Debt, Investment, Economic Development*

**JEL Classification:** C22, C51, H30, H63

**Introduction**

Nigeria's economic development has been dwindling and may undermine the achievements of Sustainable Development Goals (SDGs). Real GDP at chained PPP (measure of economic development) declined from 1 billion USD in 2010 to 983,498 million USD in 2018. Poverty headcount at 5.5 USD per day increased from 91.9% to 92% in the same period and reveals that over 90% of Nigeria population still lives below the poverty line of 5.5 USD per day. The Millennium Development Goal of halving extreme poverty by 2015 was yet to be met in 2018. 39.1% of Nigeria's households lived below the 1.9 USD a day as at 2018.

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Inequality measured by the Gini coefficient marginally declined from 38.7% in 1985 to 35.1% in 2018 (World Bank, 2018). Secondary school enrollment is still below 50% and infant and maternal mortality rate are still relatively high compared to some other countries in Africa like Ghana and South Africa (World Bank, 2022).

At the flip side of the economy, the debt profile of Nigeria has also been on a rise. Total debt (domestic debt plus external debt) rose from 12.6 trillion in 2015 to 39.56 trillion in 2021 representing 214% increase during the period. Although the debt to GDP ratio of 22.47% in 2021 seems relatively accommodative (Debt Management Office, 2022), given that it is below the self-imposed limit of 40%, the IMF is of the opinion that the debt-GDP ratio was 37% in 2021 and has projected a debt GDP ratio of 44.2% by 2027 (International Monetary Fund, 2022). They have also warned of the negative effect the rising debt could have on the economy. One of such effects is the crowding out of domestic investment. Gross fixed capital formation-GDP ratio declined from 89.39% in 1981 to an abysmally low level of 28.65% in 2021. Could the rising domestic and foreign debt in Nigeria be resulting in the downward turn of development via the crowding out of investment?

**Debt, Domestic Investment and Economic Development in Nigeria**

Economic development measured as real per capita GDP in purchasing power parity in international dollars declined from 5056.89 to 4969.22 in the period, 2011 to 2021 in Nigeria (Table 1). From the table, it is evident that the value has been on a steady decline since 2015. The year 2020 witnessed the highest level of decline with a growth rate of -4.26 percent during the period. This no doubt could have been as a result of the COVID-19 global pandemic. Although in absolute value, the index for Nigeria is greater than that of sub Saharan Africa and the Western and Central Africa regions, while the regional index improved most of the time, Nigeria's index declined almost throughout the entire period. The values were however below that of Latin America and the Caribbean all through the period.

In response to economic recovery from the COVID-19 pandemic, there was a rebound of economic development in Nigeria and the regions in 2021. However, Nigeria witnessed the least improvement compared to the sub Saharan Africa, Western and Africa and Latin America and the Caribbean sub-regions (Table 1).

Table 1. Trend of Real Per Capita GDP in Purchasing Power Parity (Economic Development)

| Year | Nigeria | | Sub-Saharan Africa | | Western and Central Africa | | Latin America and the Caribbean | |
|---|---|---|---|---|---|---|---|---|
| | Value ($) | % Growth Rate | Value ($) | % Growth Rate | Value ($) | % Growth Rate | Value ($) | % Growth Rate |
| 2011 | 5056.89 | 2.53 | 3701.05 | 1.60 | 3872.81 | 2.07 | 15278.44 | 3.47 |
| 2012 | 5131.37 | 1.47 | 3731.57 | 0.82 | 3966.07 | 2.41 | 15518.73 | 1.57 |
| 2013 | 5329.12 | 3.85 | 3812.93 | 2.18 | 4092.77 | 3.19 | 15806.16 | 1.85 |
| 2014 | 5516.39 | 3.51 | 3892.83 | 2.10 | 4215.65 | 3.00 | 15886.41 | 0.51 |
| 2015 | 5514.77 | -0.03 | 3903.57 | 0.28 | 4216.41 | 0.02 | 15836.19 | -0.32 |
| 2016 | 5284.89 | -4.17 | 3862.74 | -1.05 | 4121.25 | -2.26 | 15689.15 | -0.93 |
| 2017 | 5190.36 | -1.79 | 3862.64 | 0.00 | 4115.65 | -0.14 | 15849.56 | 1.02 |
| 2018 | 5155.08 | -0.68 | 3871.00 | 0.22 | 4132.59 | 0.41 | 15982.23 | 0.84 |
| 2019 | 5135.50 | -0.38 | 3874.45 | 0.09 | 4159.84 | 0.66 | 15953.22 | -0.18 |
| 2020 | 4916.72 | -4.26 | 3704.26 | -4.39 | 4021.29 | -3.33 | 14749.63 | -7.54 |
| 2021 | 4969.22 | 1.07 | 3763.65 | 1.60 | 4073.36 | 1.29 | 15618.17 | 5.89 |

Source: Authors' computations based on data from World Development Indicators, 2021.

Table 2 shows the trend of gross fixed capital formation in Nigeria. Regional averages for sub Saharan Africa, Western and Central Africa, Latin America and the Caribbean and Least developed countries are also presented for the period, 2010 to 2021 for comparisons. Whereas the regional averages reveal an increase in domestic investment from 2010 to 2021, Nigeria witnessed a sharp decline from 13.43% in 2014 to -14.72% in 2020 and 4.66 in 2021. It should be observed also that Nigeria recorded the least growth in domestic investment in 2021 in comparison to the regional averages.

Table 2: Trend of Gross Fixed Capital Formation (Domestic Investment)

| Year | Nigeria | Sub-Saharan Africa | Western and Central Africa | Latin America and the Caribbean | Least Developed Countries |
|---|---|---|---|---|---|
| | Value (%) | Value (%) | Value (%) | Value (%) | Value (%) |
| 2010 | 4.01 | -7.94 | 3.75 | 13.28 | -9.07 |
| 2011 | -8.25 | -2.87 | -1.29 | 9.21 | -2.98 |
| 2012 | 2.55 | -33.67 | 10.05 | 3.13 | -42.22 |
| 2013 | 7.86 | -12.74 | 1.65 | 3.16 | -18.00 |
| 2014 | 13.43 | -7.00 | 11.08 | -0.77 | -13.24 |
| 2015 | -1.32 | -5.83 | -0.68 | -3.57 | -6.98 |
| 2016 | -4.84 | -2.07 | -0.57 | -4.76 | 2.46 |
| 2017 | -2.98 | -1.19 | -4.99 | 0.72 | 4.13 |
| 2018 | 9.74 | 6.25 | 10.57 | 2.21 | 7.00 |
| 2019 | 8.29 | 6.38 | 7.02 | -1.15 | 9.30 |
| 2020 | -14.72 | -4.16 | -7.89 | -11.57 | 3.03 |
| 2021 | 4.66 | 10.79 | 8.40 | 16.78 | 12.04 |

Note: Gross fixed capital formation is computed in terms of annual percentage growth.
Source: Authors' computations based on data from World Development Indicators, 2021

Fig 1: Growth rate of total debt service (% of GDP) in 2020

Note: SSA is sub Saharan Africa, W&CA is Western and Central Africa, LA & C is Latin America and Caribbean and LDC is Least Developing Countries
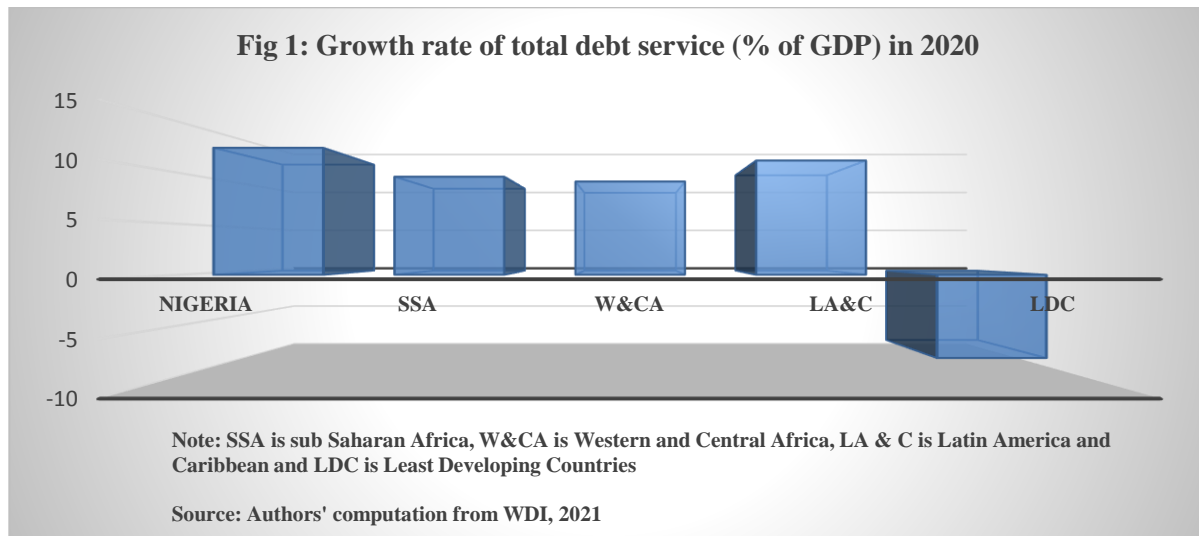
Source: Authors' computation from WDI, 2021

Figure 1 shows the growth of total debt service to GDP ratio of Nigeria in relation to the regional averages. Nigeria ranks highest compared to the regions. While on the average, other least developed countries recorded negative growth of total debt service, Nigeria's debt service is skyrocketing. This is a result of the declining oil revenue occasioned by massive oil theft and declining oil prices in the face of growing fiscal deficit.



Fig. 2: Percentage of External Debt to Total Debt in Nigeria
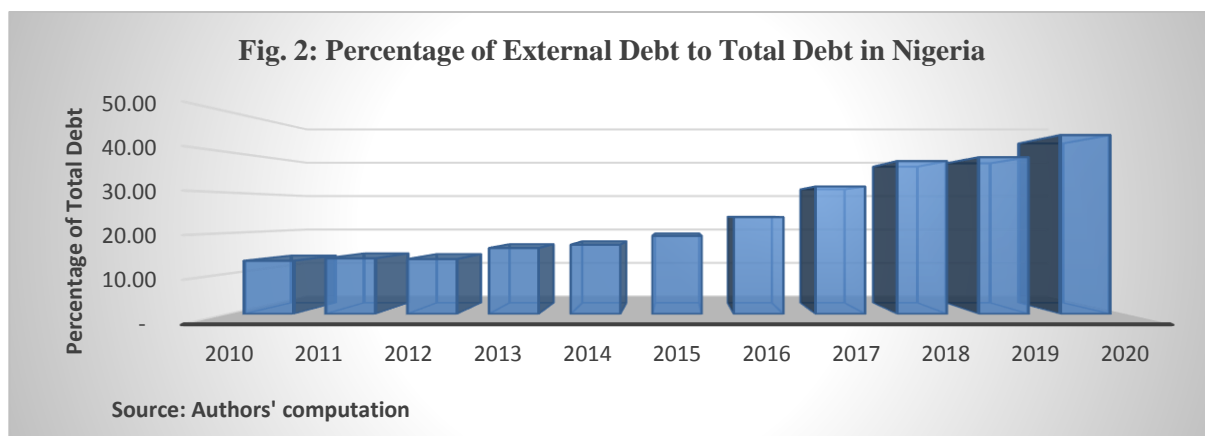
Source: Authors' computation

Figure 2 reveals the growing fraction of external debt to total debt in Nigeria. External debt was 13.16% of total debt in 2010. It grew steadily to 44.22% in 2020. Bulk of Nigeria's external debt are from multilateral sources (CBN, 2020).

From the above, Nigeria's debt profile has been on a steady growth, domestic investment continues to be heading northward and economic development has also been on a downward trend in the country. Could there be an empirical explanation to these trends? This is the question this study seeks to answer.

**Research Objectives**

The main objective of the study is to investigate the mediating role of domestic investment in the relationship between debt and economic development in Nigeria.

**Literature Review**

Theories explaining the link between debt and its impact on the economy abound in literature. The focus in this study is the debt crowding-out hypothesis, which includes the Monetarist and Keynesian approaches and the Ricardian theory of debt.

The debt crowding-out hypothesis posits that increasing payments of debt service may lead to increases in budget deficit which could reduce the level of savings. The reduction in savings crowds out credit to private investors by increases in interest rates and worsening economic outcomes which may result in economic downturns. However, government expenditure could also lead to enhancement of private sector output demand which on the other-hand could boost investment through the acceleration effect (Spillioti and Vamvoukas, 2015 and Joy and Panda, 2020). The Monetarist interpretation of the crowding-out effect of debt is on the grounds that given that businesses compete with the government for loanable funds in the bond markets and ceteris paribus, holding money supply constant, interest rate rises in the face of increasing demand for debt instruments. The rise in the cost of credit adversely affects business spending and investment. To the Keynesians, which is an off-shoot of the classical position (which holds that debts are deleterious to the economy), higher expenditure of government financed mainly by borrowing reduces private sector savings via the purchases of government bonds and the shift to future generations on the burden of debt incurred at the current period thus crowding-out current investments (Brady and Magazzino, 2018).

On the other-hand, Ricardian equivalence posits that given that market players are assumed to make adjustments in preparation for a future period of austerity and tax rises that could arise from growing budget deficits and government debt, they shift their focus from consumption and investment to savings, thereby

neutralizing the demand stimulating fiscal policy and consequently ensuring that debt does not impact economic growth (Barro, 1989).

Previous studies also reveal the link between debt and economic outcomes via domestic investment. Obayori, *et al.* (2018) in a study spanning 1980–2016, utilizing Johansen cointegration test and Error Correction Mechanism (ECM) found a significant relationship between private domestic investment and economic growth in Nigeria. Amade, *et al.* (2022) investigated the interaction between domestic investment, foreign direct investment and economic growth in Nigeria from the period, 1981 to 2018. Employing ARDL technique in estimating the short run and long run dynamics, they found that whereas domestic investment does not determine real GDP in the short run, it does in the long run. Oyedokun and Ajose (2018) found a positive nexus between domestic investment and growth in Nigeria. On the contrary, Ogunjinmi (2022), employing Autoregressive Distributed Lag (ARDL) estimator established that investment negatively impacted on economic growth in the short run, whereas, in the long run, the relationship was not statistically confirmed in Nigeria. On the relationship between debt and investment, whereas Thilanka and Ranjith (2018) confirmed a crowding-out effect in Sri Lanka's economy, Fagbemi and Adeosun (2021) employing fully modified OLS method on 13 West African countries did not find a significant effect between debt and investment.

Saifuddin (2016) evaluated the effects of Bangladesh's public debt on economic expansion. The study used investment and growth models and data from 1974 to 2014. The models were estimated using a Two Stage Least Squares regression and the findings indicated that public debt positively impacted both investment and economic growth. In a similar study, examining the relationship in six ASEAN nations of Vietnam, namely, Thailand, Singapore, the Philippines, Malaysia, and Indonesia and using the GMM estimation technique, Pharm (2018) also found a positive and significant impact of public debt on real per capital GDP growth (a measure of economic development). On the contrary however, Tawfiq and Shawawreh (2017), examining the effects of public debt on Jordan's economic growth and employing the least squares approach found that the overall public debt had an adverse effect on economic growth. Chukwuemeka and Samuel (2021) studied the relationship of public debt on economic growth in Nigeria for the period 1981 to 2019 and discovered that whereas in the short run external debt has a negative but insignificant relationship on real GDP, domestic debt had a significantly positive impact on real GDP.

According to Atuma, Odo and Nweze (2017), a significant long run and causal relationship was ascertained among domestic debt, capital formation and economic growth in Nigeria in a time series analysis spanning 1980 to 2014.  Egert (2013) and Checherita-Westphal and Rother (2010) empirically found that domestic investment, taxes and inflation are some channels through which debt influences growth. Whereas Putunoi and Mutuku (2013), Umaru, Hamidu and Musa (2013) and Babu, *et al.* (2015) found a positive impact of domestic debt on growth, Adofu and Abula (2010) and Lucy, Collins and Enest (2016) found an inverse relationship.

Babu, *et al.* (2014), in a panel fixed-effect model of annual panel data between 1970 and 2010 in the East African Community (EAC) found that external debt had a statistically significant negative influence on the expansion of the Eastern Africa economy. In an examination of the impact of external debt on the economic growth of 40 highly indebted poor countries' (HIPC) economies from 1970 to 2007, Siddique, Selvanathan, and Selvanathan (2016), employing pool mean group, and panel ARDL methods, found that external debt had a positive impact on growth in the short run but a negative and statistically significant impact on economic growth in the long run. Onakoya, and Ogunade (2019) examined the effect of external debt on Nigeria's economic growth spanning 1981 to 2014. Employing the Ordinary Least Squares technique and ARDL method, the result revealed that external debt had a negative effect on economic growth. In a similar study in South Africa, using ARDL estimation technique, Lerato (2019) revealed a positive relationship between foreign debt and economic growth via investment but a negative one via government expenditure. To Hassan and Meyer (2020), the relationship between external debt and economic growth depends on the amount of external debt employed. At low levels, external debt positively influence growth but beyond a certain threshold, external debt becomes inimical to growth in a study of 30 SSA countries and employing the augmented mean group (AMG) regression technique. Other studies that found an inverse relationship between external debt and economic outcomes include; Ayyoub, Chaudhry and Yaqub (2012),  Umaru, Hamidu and Musa (2013), Halima (2015), Ntshakala (2015), Udoh and Rafiu (2017), Sami and Mbah (2018), Shittu, Hassan and Nawaz (2018), Sharaf (2021), Mohsin, *et al*. (2021).

It is evident from the review of literature above that there is not one opinion, hypothesis, theory or empirical result that expressly link debt to economic outcome via domestic investment. While the crowding-out hypothesis suggests the reduction of domestic investment via increased interest rates by mounting debt service and its ultimate effect on economic growth, the Ricardian theory does not support that claim

especially in the long run. Also, there abound contrasting empirical results on the relationship between debt, domestic investment and economic outcomes. It is note-worthy to also observe that very few literature exist on the relationship between debt and economic development. Most literature examine the link of debt to growth. It may be convenient to rely on the theory relating debt to economic growth by this study given that growth is a very fundamental component of economic development, it is however misleading to equate the relationship between debt and economic growth to that between debt and economic development. There is therefore a need to further empirically investigate the relationship between debt, domestic investment and economic development in Nigeria especially against the backdrop of her mounting debts, declining domestic investment and growing underdevelopment.

**The Model and Data: Debt, Domestic Investment and Economic Development in Nigeria**

In answering the research questions; is domestic investment a mediator between debt and economic development in Nigeria? this study relies on debt crowding out hypothesis (see Yusuf and Mohd, 2021). Adopting the model of economic development by Gnimassoun and Anyanwu (2014) and applying the technique of Bare, *et al.* (2022) in incorporating the interaction between debt and investment in the economic development model for the Nigerian economy, the study employs a time series analysis of the relationship between debt and economic development spanning 1981 to 2020. The explanatory variable of interest (Debt) is decomposed into domestic debt and external debt to show their relative effects via investments on economic development. The explained variable is economic development measured as real gross domestic product per capita in purchasing power parity (RGDPPC_PPP). This measure is superior to the real GDP per capita given that it compares economic welfare and changes in total wellbeing of the peoples of countries in purchasing power parities and in international dollars. It is on this premise, this study employed RGDPPC_PP as the measure of economic development (see, Hicks and Streeten, 1979; Schreyer and Koechlin, 2002 and Panth, 2020). Fully modified Ordinary Least Squares (FMOLS) technique which is a proven robust technique with respect to endogeneity concerns served as the analytical tool for the study (see Wagner and Hong, 2015 and Arodoye and Abusomwan, 2022). Two baseline models are developed for the study. The first, which is a reduced-form economic development model (Model 1) relates domestic investment to economic development (see Abusomwan and Ezebuihe, 2017) while the second (Model 2) shows the relationship between debt and domestic investment. The third model (Model 3) is specified to ascertain a direct link between debt and economic development by including the debt variables (domestic and external debt) in the baseline model (Model 1)

Equation 1 is the specification of the economic development model (Model 1).

$$lnRGDPPC_{PPP} = \delta_0 + \delta_1 lnGFCF + \delta_2 TO + \delta_3 SE + \delta_4 lnPOP + \mu \ldots\ldots\ldots\ldots\ldots\ldots.1$$

$lnRGDPPC\_PPP$ is the natural log of real per capita GDP in terms of purchasing power parity (measure of economic development), $lnGFCF$ is the log of gross fixed capital formation (measure of domestic investment) $TO$ is trade openness, $SE$ is secondary school enrolment which measures education (human capital index) and $lnPOP$ is the log of total population. $\delta_1, \delta_2, \delta_3 \ and \ \delta_4$ are the coefficients of the explanatory variables. $\delta_0$ is the intercept (constant) and $\mu$ is the stochastic error term. From economic theory and previous empirical studies, it is expected that $\delta_1$ assumes a positive value while $\delta_2, \delta_3 \ and \ \delta_4$ could assume either positive or negative values. Model 1 investigates the link through which debt affect economic development (domestic investment). If domestic investment significantly enhances economic development in Model 1 and debt significantly affect domestic investment in Model 2, then an indirect link between debt and economic development via domestic investment is established.

$$lnGFCF = \beta_0 + \beta_1 lnDD + \beta_2 lnED + \beta_3 PG + \beta_4 lnRGDPPC_{PPP} + \beta_5 INF + \beta_6 BM$$
$$+ \varepsilon \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots..2$$

$lnGFCF$ is the log of gross fixed capital formation, $lnDD$ is the log of total domestic debt, $lnED$ is the log of total external debt, $PG$ is the population growth rate, $lnRGDPPC\_PPP$ is the log of real gross domestic product per capita expressed in purchasing power parity, $INF$ is inflation rate, $BM$ is broad money to GDP ratio and $\varepsilon$ is the stochastic error term. $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5 \ and \ \beta_6$ are the coefficients of the explanatory variables while. $\beta_4$ is expected to be positive, $\beta_5$ is expected to be negative while $\beta_1, \beta_2, \beta_3 \ and \ \beta_6$ are expected to take any values.

Equation 3 is specified to investigate the existence of a direct link between debt and economic development by including debt in the economic development model specified in equation 1.

$$lnRGDPPC_{PPP} = \delta_0 + \delta_1 DEBT + \delta_2 lnGFCF + \delta_3 TO + \delta_4 SE + \delta_5 lnPOP + \varepsilon \ldots\ldots\ldots\ldots\ldots\ldots.3$$

Except for the introduction of debt into equation 3, the other variables in the model are essentially the same as equation 1. Debt represents total debt, domestic debt and external debt. Three different models are developed from equation 3 to independent test the relationship between total debt stock, its constituents and

economic development. From empirical and theoretical literature, it is expected that the coefficient of debt takes any value (positive or negative)

Table 3: Definition of Variables and Sources of Data used for the Regression Analysis

| Variable | Definition | Source |
|---|---|---|
| Economic Development (LNRGDPPC_PPP) | Log of Real Per capita GDP based on Purchasing Power Parity (PPP) | World Bank (WDI, 2021) |
| Domestic Investment (LNGFCF) | Log of Gross Fixed Capital Formation (Constant, 2010 US$) | World Bank (WDI, 2021) |
| Total Debt (TD) | Total Government Debt Outstanding (Domestic plus external debts, Current Naira) | CBN Statistical Bulletin (2020) |
| Inflation (INF) | Consumer Prices (Annual %) | World Bank (WDI, 2021) |
| Trade Openness (TO) | Export plus Import (% of GDP) | World Bank (WDI, 2021) |
| Population (POP) | Total population (Head count) | World Bank (WDI, 2021) |
| Secondary School Enrollment (SE) | Gross enrollment ratio of total secondary school enrollment to the population of age group that correspond to that level of education | World Bank (WDI, 2021) |
| Broad Money (BM) | Broad Money to GDP ratio | World Bank (WDI, 2021) |
| Domestic Debt (DD) | Total Government Domestic Debt Outstanding (Current Naira) | CBN Statistical Bulletin (2020) |
| External Debt (ED) | Total Government External Debt Outstanding (Current Naira) | CBN Statistical Bulletin (2020) |

Note: WDI is World Development Indicators; CBN is Central Bank of Nigeria

Table 3 shows the definition of variables and data used by the study. The mean, median and standard deviation of the variables employed by the study are presented in Table 4 as descriptive statistics. The mean of domestic debt for the period under study is 3202.63 while that of foreign debt is 1973.4 indicating that domestic debt is almost as twice as foreign debt in Nigeria. Domestic debt series are also more dispersed than that of foreign debt with standard deviations of 4571.07 and 2779.72 respectively. The mean of real per capita GDP on purchasing power parity of 4070.38 US dollars per annum shows that Nigeria is still under-developed.

Table 4: Descriptive Statistics of the Variables for the Regression

| Variable | Observation | Mean | Median | Standard Deviation |
|---|---|---|---|---|
| Economic Development (LNRGDPPC_PPP) | 40 | 4070.38 | 3997.44 | 973.28 |
| Domestic Investment (LNGFCF) | 40 | 59.5 | 56.8 | 13.8 |
| Domestic Debt (DD) | 40 | 3202.63 | 957.61 | 4571.07 |
| External Debt (ED) | 40 | 1973.4 | 640.98 | 2779.72 |
| Trade Openness (TROP) | 40 | 33.17 | 34.08 | 10.114 |
| Secondary School Enrollment (SE) | 40 | 33.77 | 31.87 | 9.82 |
| Population (POP) | 40 | 142.639 | 135.97 | 42.65 |
| Inflation (INFL) | 40 | 18.99 | 12.72 | 16.87 |
| Broad Money (BM) | 40 | 16.37 | 13.46 | 5.88 |

Note: These are raw data before the log transformation
Source: Authors' computations using Eviews 10 (2022).

Figure 1 is a scatter plot relating total debt to real per capita GDP in PPP from 2010 to 2020. It is evident from the plot that there seem to be an inverse relationship between domestic debt and RGDPPC_PPP.



Figure 1: Scatter Plot of Real Per Capita GDP in PPP and Total Debt in Nigeria

Source: Authors' computation
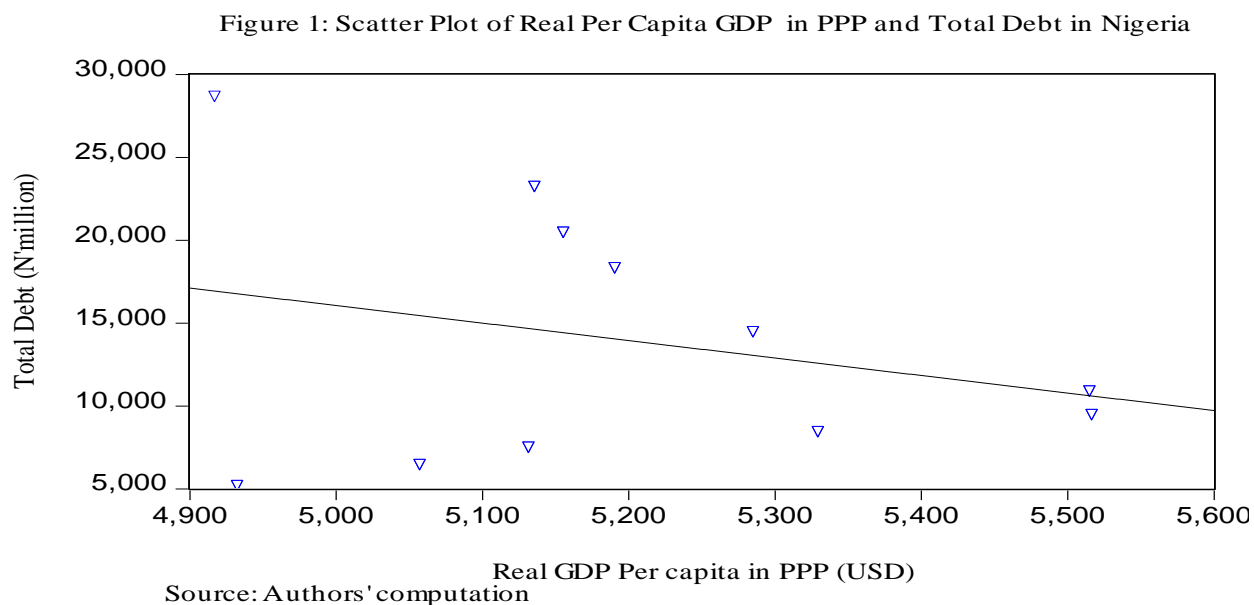
The scatter plot relating domestic investment to real per capita GDP in PPP is presented in Figure 2. The diagram shows that both variables positively correlates in Nigeria.

Figure 2: Scatter Plot of Real Per Capita GDP in PPP and Gross Fixed Capital Formation in Nigeria



Source: Authors' computation
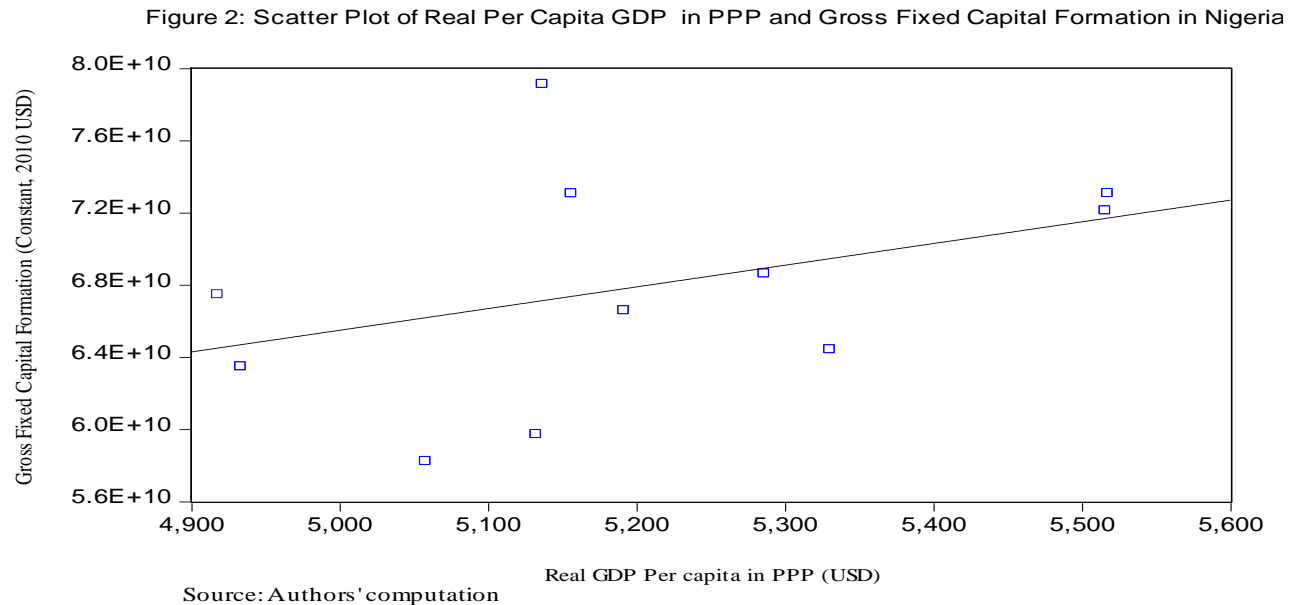
## The Results

## Debt and Economic Development in Nigeria: Is there a direct link?

Three models examining the direct link between debt and economic development in Nigeria is represented by the Fully Modified Ordinary Least Squares (FMOLS) regression in Table 5. Model 1 shows the relationship between total debt and economic development while models 2 and 3 reveals the interaction between the disaggregated components of debt vis, domestic and external debt respectively and economic development in Nigeria.

From Table 5, the coefficients of determination (R-squared) and its adjustment (adjusted R-squared) of all the models reveal a goodness of fit. On the average, over 95% of variation in the economic development index (RGDP-PPP) is explained by the model. The explanatory powers of the models are further boosted by the very low standard errors and the acceptance of the null hypothesis of normality confirmed by the Jaque Bera statistics. The appropriateness of the estimation technique utilized by the study (FMOL) cannot be overemphasized. Its robustness in handling endogeneity and heterogeneity and persistence concerns in regression analyses are obvious in the diagnostics in Table 5.

A highly significantly negative direct link is found to exist between debt and economic development in Nigeria (Models 1 – 3, Table 5). Total debt and its components exhibit inverse relationship with economic development in Nigeria. Specifically, from Model 1, a percentage increase in total debt leads to a 0.094 percent decrease in real gross domestic product measured in purchasing power parity (RGDPPC-PPP) at the one percent level of significance in Nigeria. The disaggregates of debt (domestic and external) also reflects similar results. At the one percent significance level, a percentage increase in domestic debt and foreign debt result in decrease in RGDPPC-PPP by 0.292 percent and 0.05 percent respectively (Models 2 and 3). Although inelastic, the results show an inverse relationship between debt and Nigeria's economic development implying that the increasing debt profile of Nigeria is deleterious to the economic wellbeing of her population, conforming with the results of Lucy, Collins and Ernest (2016) and Tawfiq and Shawawreh (2017). The negative relationship could be as a result of the manner of the utilization of debts in Nigeria. Proceeds from debts seemed to have been channeled to financing recurrent expenditure components of the budget which are prone to inefficiencies and corruption.

**Table 5:  Debt and Economic Development in Nigeria: Is there a direct link?**

| Explanatory Variables | Economic Development (lnRGDP-PPP) | | |
| --- | --- | --- | --- |
| | 1 | 2 | 3 |
| Total Debt (lnTD) | -0.094*** | | |
| | (-5.179) | | |
| Domestic Debt (lnDD) | | -0.292*** | |
| | | (-5.999) | |
| Foreign Debt (lnFD) | | | -0.05*** |
| | | | (-4.699) |
| Domestic Investment (lnGFCF) | 0.234*** | 0.308*** | 0.214*** |
| | (5.072) | (7.093) | (4.235) |
| Trade Openness (TO) | 0.092 | 0.002* | -0.001 |
| | (1.74) | (1.802) | (-0.960) |
| Education (SE) | 0.007*** | 0.010*** | 0.007*** |
| | (3.576) | (5.978) | (3.144) |
| Population (lnPOP) | 1.124*** | 2.620*** | 0.770*** |
| | (6.826) | (6.088) | (6.782) |
| Constant | -19.929*** | -48.993*** | -13.09*** |
| | (-7.766) | (-6.259) | (-7.529) |
| R-Squared | 0.959 | 0.970 | 0.957 |
| Adjusted R-Squared | 0.946 | 0.961 | 0.944 |
| S. E. of Regression | 0.058 | 0.050 | 0.060 |
| Jaque-Bera | 0.015 | 0.881 | 0.003 |
| Probability | (0.993) | (0.644) | (0.999) |
| No. of Observations | 22 | 22 | 22 |

Note: * (**)[***] represent significance at the 10% (5%) and [1%] levels; t-statistics are in parenthesis; Models 1 - 3 respectively isolates the total debt and its disaggregates in relation to economic development . Source: Authors' calculations using Eviews 10 (2022).

Given that a direct link between debt and economic development in Nigeria has been ascertained, this study further attempts to investigate the indirect channel of influence of debt on economic development. This is done by answering the question, does debt adversely affect economic development by crowding out domestic investment in Nigeria?

**Table 6: Debt and Economic Development in Nigeria: Is Domestic Investment a mediator?**

| Explanatory Variables | Economic Development (lnRGDP-PPP) | Domestic Investment (lnGFCF) |
|---|---|---|
| | 1 | 2 |
| Domestic Investment (lnGFCF) | 0.345*** | |
| | (4.173) | |
| Trade Openness (TO) | -0.002 | |
| | (-0.841) | |
| Education (SE) | 0.015*** | |
| | (4.709) | |
| Population (lnPOP) | 0.263** | |
| | (2.498) | |
| Domestic Debt (lnDD) | | 0.065*** |
| | | (3.036) |
| Foreign Debt (lnFD) | | -0.064*** |
| | | (-3.949) |
| Population Growth (PG) | | -2.259*** |
| | | (-5.279) |
| Economic Development (lnRGDP-PPP) | | 0.730*** |
| | | (4.371) |
| Inflation (IF) | | 0.002*** |
| | | (3.647) |
| BroadMoney_GDP(BM) | | -0.003 |
| | | (-1.124) |
| Constant | -8.086*** | 29.619*** |
| | (-3.144) | (35.237) |
| R-Squared | 0.932 | 0.732 |
| Adjusted R-Squared | 0.917 | 0.663 |
| S. E. of Regression | 0.072 | 0.081 |
| Jaque-Bera | 0.387 | 1.664 |
| Probability | (0.824) | (0.435) |
| No. of Observations | 22 | 30 |

Note: * (**)[***] represent significance at the 10% (5%) and [1%] levels.  Model 1 relates domestic investment to economic development in Nigeria while Model 2 links debt to domestic investment.
Source: Authors' calculations using Eviews 10 (2022).

**Debt and Economic Development in Nigeria: Is Domestic Investment a mediator?**

In this study, the mediating role of domestic investment in the debt-economic development nexus is examined by disaggregating debt to domestic and external and ascertaining their relative influences via the domestic investment transmission channel. Two models are presented in Table 6. Model 1 shows the relationship between domestic investment and economic development while the relationship between debt (domestic and external) and domestic investment is explained by Model 2.

From Model 1, domestic investment is found to significantly enhance economic development at the one percent significance level in Nigeria. This further confirms the results of the three Models in Table 6. Specifically, a percentage increase in domestic investment results in 0.345 percent increase in economic development at the one percent significance level. This is intuitively plausible given that from economic theory, increase in investment boosts aggregate demand which enhances economic growth and development. By implication, positive influencers of domestic investment will indirectly enhance economic development while negative determinants of domestic investment will indirectly undermine Nigeria's economic development. This supports the works of Obayori, *et al*. (2018), Oyadokun and Ajose (2018) and Amade, *et al.* (2022).

The impact of debt on domestic investment in Nigeria depends on its component as evidenced in Model 2 (Table 6). Whereas, domestic debt significantly impacted positively on domestic investment (in line with the study of Saifuddin, 2018), external debt impacted negatively on domestic investment at the one percent level of significance (in support of Thilanka and Ranjith, 2018). With t-statistic of -3.949, the results also show that external debt is a more significant influencer of domestic investment than domestic debt with t-statistic of 3.036. In terms of the absolute impact, with coefficients of -0.064 and 0.065, external debt influences domestic investment negatively almost as much as the positive influence of domestic debt on domestic investment respectively. The result reveals that gains of domestic debt on domestic investment is netted-off by the losses generated on same by external debt in Nigeria.

Given that both domestic and foreign debt significantly influence domestic investment and domestic investment significantly impact on economic development in Nigeria, the results in Table 6, therefore confirms a mediating role of domestic investment in the interaction between debt and economic development in Nigeria. Specifically, the indirect channel of domestic debt to economic development in

Nigeria is explained thus; ceteris paribus, an increase in domestic debt increases domestic investment which ultimately results in an improvement in Nigeria's economic development vice versa.  On the other hand, the indirect link of external debt to economic development in Nigeria is via its reduction in domestic investment and ultimately declining economic development. Summarily, while domestic debt improves Nigeria's economic development via domestic investment, external debt worsens Nigeria's economic development via domestic investment. This validates the 'crowding out' hypothesis in Nigeria economy. Apart from external debt, this study also found economic development to be adversely affected indirectly by population growth and inflation via domestic investment. Population growth and inflation undermine the positive effect of domestic investment on economic development with coefficient of -2.259 and -0.002 at the one percent significant level respectively (Model 2, Table 6).

From Tables 5 and 6, reverse causation is found to exist between domestic investment and economic development at the one percent level of significance. From all the models in Table 5 and Model 1 in Table 6, domestic investment highly impacts economic development at the one percent level. At the flip side, from Model 2 in Table 2, economic development also highly significantly impacts domestic investment in Nigeria with coefficient and t-statistic of 0.730 and 4.371 respectively.

**Conclusion and Policy Recommendations**

Nigeria is currently bedeviled with the macroeconomic problems of increasing underdevelopment and mounting debts which are increasingly becoming unsustainable. In this study, an expository research is conducted to investigate the relationship between debt and economic development in Nigeria. The study employed a time series analysis spanning 1981 to 2020 of the relationship in Nigeria. Employing fully modified OLS regression technique, domestic debt and external debt were found to have a direct negative link with economic development while an indirect link via domestic investment was also established. The indirect channel showed that increase in domestic debt leads to economic development via the stimulation of domestic investment while increase in external debt undermine economic development in Nigeria via the crowding out of domestic investment.

The negative influence of debt on Nigeria's economic development can be explained by the leakages, corruption and lack of prudent debt management. The Federal Government has admitted to loss of about 80% of the nation's oil revenue to theft. Corruption has reached an unprecedented level. The increasing

fiscal deficits and its consequent borrowings would be minimized if these leakages and corruption are minimized. Also, foreign direct investment which would have augmented domestic investment for enhancement in economic development is on a downward trend as a result of increasing country risk exacerbated by the worsening security situation and huge infrastructural deficits in the country. To this end, the first recommendation by this study is for the government to muster the political will and machineries to reduce the leakages, wastages and corruption bedeviling Nigeria's fiscal space. With the rich mineral, material and human resources, there may not have been needs for Nigeria to borrow externally. Second, if there be any need for external borrowing, it should be channeled to the productive sector of the economy rather than on consumption and recurrent expenditure as is currently the case given that external borrowing is found to have a direct and indirect negative link with economic development in the country. Third, there is the need for harmony of policies from the monetary and fiscal authorities in the country. There seem to be conflicting fiscal, monetary, exchange rate and income policies. For instance, stopping the importation of commodities for which local demand is inelastic and local supply cannot be enhanced in the short run (as has been the case) will certainly mount pressure on the exchange rate and cause macroeconomic swings which will necessitate more debt financing. Fourth, there is need for fiscal re-engineering, discipline and reforms in Nigeria's fiscal administration. Fiscal authorities should seek to widen the tax net to enhance the tax base. The rich in Nigeria do not pay adequate tax which is why there is wider inequality in the country.

The issue of multiple taxation which discourages investment and weakens the growth of small and medium scale enterprises should be properly addressed. Improved tax administration will reduce the pressure on external fiscal financing.  Finally, there is the need to strengthen institutions of governance in the country. These include legal and regulatory institutions such as the Central bank of Nigeria (CBN), the Nigerian Deposit Insurance Corporation (NDIC), the Economic and Financial Crime Commission (EFCC), Independent Corrupt practices and other related Crimes Commission (ICPC), Independent National Electoral Commission (INEC) and the Judiciary. These institutions are very weak and currently tied to the aprons of the executive arm of government. There cannot be confidence and trust in the economic system if these institutions remain dependent on and answerable to the Commander in Chief of the Armed forces of Nigeria. Guaranteeing the independence and strengthening these institutions will improve the investment climate, stimulate domestic investment and attract foreign direct investment for economic growth, which will further boost taxable incomes, reduce debt burden and fiscal deficits, and ultimately enhance economic development.

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