

External Debt, Economic Growth and Investment in Nigeria

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ABSTRACT

This study examines the impact of external debt on the level of economic growth and the volume of investment in Nigeria between 1980 and 2008. We adopt the Debt Cum-Growth model along with the Investment model while the econometrics analysis techniques of multiple regressions were employed. The result of the analysis indicates that there exists a positive relationship between external debt, economic growth and Investment; this was confirmed by the coefficient of determination (R^2) of about 79.8%. While the findings reveal that the current external debt ratio of GDP stimulates growth in the short term, the Private Investment which is measure of real and tangible development shows a decline. The study recommends among others that government should ensure that appropriate measures are put in place to achieve optimal use of borrowed funds so that servicing such funds will not invoke economic crises and erode the level of private investment which is central to the overall economic growth and development.

KEYWORDS: Debt overhang, debt rescheduling, debt burden, Investment, Consumption, Illiquidity

1.0

INTRODUCTION

Debt is created by act of borrowing. It is defined according to Oyejide *et al* (2004) as the resource or money use in an organization that is not contributed by its owner and does not in any other way belong to them. It is a liability represented by a financial instrument or other formal equivalent. External debt therefore refers to the resources of money in use in a country that is not generated internally and does not in any way come from local citizens whether corporate or individual. The World Bank (1998) described external debt as the amount of money at any given time disbursed and outstanding contractual liabilities of residents to pay interest, with or without principal.

The external problem facing Nigeria has been receiving increasing attention in which adequate solutions are yet to be found. A clear and persistent lesson of debt crisis has been that adequate debt management is essential if external resources are to be used efficiently. Many developing countries resort to external borrowing to bridge the domestic resource gap in order to accelerate economic development. It means that the processes are utilized in a productive way that facilitates the external servicing and liquidation of the debt.

In the 1950s, countries were encouraged to borrow from abroad to create an economic growth. In the process, little attention was paid to the liabilities side of the current account deficit, which increased the external indebtedness of these countries. As a matter of fact, foreign borrowing can be explained in terms of the technical management and financial requirement necessary to support development programmes and economic growth. Between 1960s and 1970s, deficit in the current account finances by borrowing from abroad were highly favoured as a way of boosting economic growth and to foster development.

There is widespread recognition in the international community that excessive foreign indebtedness of many developing countries remains a major impediment to their growth and stability. Developing countries have contracted large amount of debts, often at highly concessional interest rates particularly in the 1970s. The hope was that these loans would put them at faster development path through higher investment and faster growth. But as debt service ratios reached very high levels in the 1980s, it became clear that for many of these countries, debt repayment would not only just constrain economic performance in their countries, but would be virtually impossible to repay back these loans and leave a favourable balance to support their domestic economy.

Attempts to cope with the debt crisis through the adoption of IMF-supported programmes further compounded the excruciating debt problem. The structural Adjustment Programmes have invariably resulted in worsening economic condition. The Highly Indebtedness Poor Countries (HIPC) initiative formulated by the IMF/World Bank has also fallen far short of what is required to re-establish the condition of sustained economic growth. The fiscal burden of debt servicing is extremely inimical to economic growth in HIPCs, and is in fact an important reason for the failure of the structural adjustment programmes to restore economic growth in Nigeria

1.1 THE DEBT – CUM – GROWTH MODEL

Given the need for larger capital stock and the inadequacy of domestic saving to finance investment that would make this possible, it is necessary that domestic savings should be supplemented by foreign sources; this shifted the issue from whether external funds are useful to developing countries but how much is sufficient to help realize her growth potential. However, the general case for borrowing aboard is to add to financial resources not just to acquire specific

resources (Solis *et al* 1985); first is can increase resources available for investment by supplementing export earnings. According to national income accounting, excess investment expenditure over domestic savings equivalent to surplus of imports over exports. At equilibrium, the following identities hold;

$$I - S = m - x \quad \dots \quad \dots \quad (1)$$

$$S - M = x - m \quad \dots \quad \dots \quad (2)$$

Where:

I = Investment

S = Savings

M = Import

X = Export

The above equations implies that the domestic resources gap (S – I) is identified to foreign investment or external gap (x – m), an excess of import over export necessarily implies an excess of resources used by an economy over resources generated by it or an excess of investment in resources generated by it or an excess of investment in relation to domestic savings, this means that need for foreign borrowing overtime is determined by the rate of investment in relation to domestic savings. However, foreign borrowing is not only the difference between domestic investment and savings but includes the different between export and import.

$$id - s = m - x \quad \dots \quad \dots \quad (3)$$

$$id + x = s + m \quad \dots \quad \dots \quad (4)$$

The condition for the national income to be is that domestic investment plus export must equal import plus domestic savings for the balance of payment to be in equilibrium with no foreign borrowing, export must be equal import and domestic investment i.e. unaccompanied by an equal shift in the savings schedule must be financed in part by borrowing from abroad. This is because part of increased income will spill over into import (assuming a positive marginal propensity to import). The only condition for investment to increase without adversely affecting the balance of payment is if exports expand simultaneously in the correct proportion or the savings schedule shift upwards or the import schedule shift downward. However, the gaps in the equation (3) and (4) above may not be equal, factor proportion may be slow to adjust and substitutability between foreign and domestic resources may be a long drawn out process than the possibility that exist for the shortage of foreign exchange and domestic savings at particular points time as well as overtime.

2.0 REVIEW OF EMPIRICAL STUDIES AND CONCEPTUAL ISSUES

Most studies on the effect of external debt on economic growth find one or more debt variables to be significantly and negatively correlated with investment or growth depending on the focus of the study. Anyanwu (1994) was of the opinion that a whole scale of some white elephant development project in the country is the root cause of our external debt problem. He says instead of emphasis being placed on small-scale rural development projects so as to reverse the chaotic trend of urbanization and lessen the opportunity for corruption, Nigeria government started embarking on many illusory projects of which many are not productive.

Sanusi (1988) in his own view believe that the Nigeria's debt problem was caused by the inappropriate monetary and fiscal policies of the government. These policies had an adverse effect on the domestic economy leading to domestic inflation, capital flight, encouragement of import, and discouragement of production for export, distortion in relative price and other depressant effects. He was of the opinion that the rigid exchange rates and pricing was one fact that caused external debt problem. A study by IMF in 1989 on investment behaviour found investment to be lower in heavily indebted countries, and after analyzing the different explanations for the decline in investment concluded that poor performance of investment in countries with debt servicing of sub-Saharan African countries, debt serving in the face of inadequate foreign earning leads to severe import strangulation. Import strangulation hold back export growth thus perpetuating import shortages. The debt overhangs created by the debt situation further depress investment. Problems are generally consistent with the presence of debt overhang.

Borenztein (1990) however found that debt overhang had an adverse effect on private investment in Philippines. The effect was strong when private debt rather than total debt was used as a measure of debt overhang. Cohen (1993) argued that the results on the correlation between the less developing country (LDC) debt and the investment in 1980s showed that the level of stock of debt does not appear to have much power to explain the slowdown of investment in developing countries during the 1980s. It is the actual flow of net transfers that matter. He found that the actual service of debt crowded out investment. Fajana (1993) sees nothing wrong with external or foreign borrowing but that the debt crises arise due to the mismanagement of such funds. In fact he believes that borrowing is desirable and also unavoidable because external borrowing is the first order condition for bridging the domestic gap, the second order condition is that such funds be invested in viable projects whose rate of return is higher than that of the interest rate on the loan. He summed this up by saying that for external debt to serve as an engine of growth it has to be well managed and the resources it make available need to be prudently and efficiently utilized.

Onah (1994) also view that the debt burden can depress investment, and hence economic growth, through illiquidity and disincentive effects. The illiquidity effects result from the fact that there are only limited resources to be divided among consumption, investment and external transfers to service existing debt. He then concluded that the disincentive arise because expectations of future burdens tend to discourage current investment. Ajayi (1995) posited “Debt is without any vestiges of doubt, an obstacle to the restoration of growth in many third world countries today”. In his view the external debt of the third world countries rises to USDI.32 billion at the end of 1998, this is equal to about half of their combined Gross National Production (GND). The situation in Africa is particularly pathetic, sub Sahara Africa’s external debt was USD 161billion at the end of 1986 out of which the low income, debt distressed countries owned USD 45billion or 45% of indebtedness. Ogwuma also in 1995 says that external debts arise from loans and credit procured by the residents of a country from the rest of the world intended to bridge the saving-investment gap. According to him, when such resources are productively deployed, they do not constitute a problem or a drain on the future resources.

Iyoha (1997) was of the opinion that heavy debt burden acts to reduce investment through both debt overhang and the “crowding out effect. His results were similar for Sub-Saharan African (SSA) countries. Claessens *et al* (1996) also noted that under such circumstances, the debtor country shares only partially in any increase in output and export because a fraction of that increase will be used to service the external debt. The theory implies that debt reduction will lead to increased investment and repayment capacity and as a result, the portion of debt outstanding becomes more likely to be repaid. Ndekwu (1996) equally examines the historical trend structures and growth of Nigerians public debt. He also reviews the debt policy for the purpose of a sound debt management policy. The study use analytical approach to arrive at reasonably conclusion. The gap left in this study is in the area of qualification of the effect of external debt causes on the movement of external debt indicators and the growth of the economy through empirical models. Despite gaps, it was concluded that excessive rate of government borrowing requirements arising from persistent and growing budget deficit has largely caused Nigeria external debt crises sustainability of debt servicing, borrowing countries need to adopt efficient external debt management strategies. He observed that problem usually exist when more and more resources are deployed to serve the loan.

Elbadawi *et al.* (1996) made use of cross section regression for 9 developing countries spanning SSA, Latin America, Asia and Middle East to study the impact of debt overhang on economic growth. Three direct Channel, in which indebtedness in SSA work against growth was identified. These include, current debt inflows as a ratio of GDP [which should stimulate growth], past debt accumulation [capturing debt overhang] and debt service ratio. The fourth channel was an indirect channel, which works through the impacts of the above channel manifested by severely compressed budget using data for Cameroon. According to Elbadawi *et al* (1996), these debt burden indicators also affect growth indirectly through their impact on public sector expenditures. As economic conditions worsen, government find themselves with fewer resources and public expenditure. Part of this expenditure destined for social programs has severe effects on the very poor. Most studies confirm debt overhang/crowding out effect.

Essien (1998) examines the impact foreign debt has on economic growth. It is found that the degree of responsiveness of growth to external finance in Nigeria is elastic. The policy lesson from the study is that government should put in Place the appropriate debt management strategy which should include feasibility study of projects to financed from external resource since the prospects of economic growth from-externally injected resources invested in productive ventures are very bright.

Furthermore, Nair and Frazier (1988) attributed the problem of LDCs debt to their dwindling foreign exchange earnings and increasing rate of interest that are attached to the loans obtained. To them the debt burden could be alleviated and they recommend that indebted countries must ensure that their exchange any grow faster than the foreign interest payment on loans and that new capital inflow must be directed on productive investment rather than using them for debt servicing.

Iyoha (1997a) supported the argument made by Ajayi when he said that the two issues; debt and lack of growth are clearly inter-related. Indeed, excessive stock of external debt retard growth and hamper the socio economic development of sub-Saharan African countries. The large debt stock and crushing debt service burden have now introduced a new vicious cycle to the analysis of the development problem.

Obadan (2001) opined that for a country aspiring to achieve a particular target rate of growth, such growth may be limited by lack of domestic savings or foreign exchange. Growth as he argued is limited by the domestic resource gap of the foreign exchange or external sector gap and foreign borrowing is required to meet the larger gap. If foreign exchange is the dominant constraint, dual gap analysis stressed that additional role of foreign borrowing in supplementing foreign exchange without which a fraction of domestic savings might be unutilized because actual growth would be constrained by the inability to import necessary input. Skiod (2001) on his part fund that there exists a debt overhang and crowding out effect of external debt on growth. Akinlo (2004) investigates the impact of foreign direct investment [FDI] on economic growth in Nigeria, for the period 1970 – 2000. The study made use of error correction modeling in investigating the relationship. The results of the study show that both private and lagged foreign capitals have small and not a statistically significant effect on

growth. Also the results show that export has a positive and statistically significant effect on growth. The findings of the study suggest that there is the need for labour force expansion and education policy to raise the stock of human capital in the country. Most of the studies reviewed above studies the relationship between debt and economic growth, Private investment and growth. It is very clear from the literature that huge external debt negatively impact on foreign private investment but the direction of the relationship is yet to be explored. This study therefore intends to look at the direction of causation between external debt and foreign private investment in Nigeria. Adegbite *et al.* (2008) in their study adopted the neoclassical growth model which incorporates external sector, debt indicators and some macroeconomic variables to examine the effect of Nigerian external debt on economic development and found among other things that there is a negative impact of debt (and its servicing requirements) on growth in Nigeria and that external debt contributes positively to growth up to a point after which its contributions become negative reflecting the presence of nonlinearity in effects.

From the above, it is obvious that it is not the acquisition of external debt that is the major problem of economic growth especially in developing economies but the inappropriate application of such funds. Debt service payment reduces export earnings and other resource and therefore retards growth. The mechanism through which external debt affects economic growth is through investment. Investment behavior is adversely affected by debt servicing, especially in heavily indebted economies. The major uniqueness of this study is that while most previous studies on the subject matter focus on impact of external debt on growth, this research examines the impact of external debt on growth and private investment.

2.1 EXTERNAL DEBT MANAGEMENT STRATEGIES

Right from the 1980s, the management of the external debt became major responsibility of the central Bank of Nigeria due to its increasing proportion (CBN). This necessitated the establishing of a special department in collaboration with Federal Ministry of finance to the management of external debt. Although, the debt management strategies and measures varied from time to time since the 1980s when the external debt became pronounced, the Government uses the following measures as guidelines to external borrowing:

- Economic sector should have positive internal Rate of Return (IRR) as high as the cost of borrowing i.e. interest
- External loans for private and public sector projects with the shortest rate of return should be sourced from the international capital market while loans for social services or infrastructure could be sourced from professional financial institutions.
- State government, Parastatal, Private sectors borrowing must receive adequate approval from the Federal Government so as to ensure that the borrowing conforms to the national objectives.
- Projects to be financed with external loan should be supported with feasibility studies which include loan acquisition, deployment and retirement schedule.
- State Government and other agencies with borrowed funds should service their debts through foreign exchange market and duly inform the federal Ministry of finance for record purposes.
- Private sector, industries that are export earning while others should utilize the foreign Exchange Market facilities for debt servicing.

The government over the years adopted the under listed strategies and measures to deal with the debt problem. These include:

- i. Embargo on new Loans and Directives to state Government to restrict external borrowing to the barest minimum. The embargo was to check the escalation of total debt stock and minimize additional debt burden. However, these have not been particularly effective because of indiscriminate quest for external loans.
- ii. Limit on debt service payments: This requires setting aside portion of export earnings to allow for internal development.
- iii. Debt Restructuring: - This involves the reduction in the burden of an existing debt through refinancing, rescheduling, bring back, issuance of collateralized bond and the provision of new money.

TABLE 2.1: External & Domestic Debt components of Nigeria's Public Debt.

| Type | 2004 | | 2007 | | 2009 | | 2010 | |
|---------------|-----------------------------|------|-----------------------------|-------|-----------------------------|------|-----------------------------|---|
| | Amount Outstanding (US\$Bn) | % | Amount Outstanding (US\$Bn) | % | Amount Outstanding (US\$Bn) | % | Amount Outstanding (US\$Bn) | % |
| External Debt | 35,944.66 | 77.7 | 3,654.67 | 16.44 | 4,578.77 | 13.2 | | |
| Domestic Debt | 10,314.79 | 22.3 | 18,575.67 | 83.56 | 30,345.46 | 86.8 | | |
| Total | 46,259.45 | 100 | 22,229.88 | 100 | 34,924.23 | 100 | | |

Source: Central Bank of Nigeria (CBN) and Debt Management Office (DMO).

The above table shows the two major components of the Nigeria external debt and their proportion as at 2010

2.2 NIGERIA EXTERNAL DEBT SERVICING

The major challenges faced by the Debt Management office (DMO) is ensuring that a reasonable level of resources are ear- marked for debt servicing to avoid the risk of default and to maintain conducive relations for debt relief negotiations with the creditors. Debt service payment to the World Bank is due every 15 days while ADB (African Development Bank) service payments occur frequently. The debts are not subject to debt relief or rescheduling and in case of default, they carry stiff consequences with sanctions coming 30 days after due date. The implications for default include:-

- i. Prohibition of borrower/guarantor from signing new loan or guarantee agreement with the back ground.
- ii. Suspension of disbursement in respect of all Bank group loans granted to the borrower/guarantor.
- iii. Suspension of the granting of any new loans by the Bank Group to the borrower/guarantor.

The impositions of the above sanction adversely affect the credit worthiness of a country as well as access to further foreign credits and loans. It is therefore to be avoided by all means

A Paris Club: - Failure of debt service obligation will undermine Nigeria's effort to obtain substantive debt relief over the medium term coupled with the inability to benefit from normal credit facilities as Export credit agencies in Paris Club creditor countries seeking to import goods and service are required to pay full 100% upfront, even against deliveries that will take several months and at times years.

B Bilateral: - Defaulters in this category incur penalty charges in the form of late interest, which are usually about 1-3% above the normal interest charged.

C London Club:- The consequences of defaulting are stiff as the instrument carry legal obligations e.g. if par bonds on promissory note payment is not received as at when due, creditor could acquire the assets of the Central Bank of Nigeria (CBN) and Nigerian National Petroleum Corporation (NNPC) anywhere in the world.

In order to facilitate the implement of a new debts service arrangement, the DMO has agreed with the debtors on the nation's external debt stock and debt service obligation so that levels of government and their agencies that contracted the loans would know their respective stock of debt and the required amount for servicing.

2.3 NIGERIA EXTERNAL DEBT RESCHEDULING AND RESTRUCTURING

Debt Rescheduling involves the postponement, extension and reordering of the repayment of the existing debt. An agreement between creditors (government authorities and the commercial banks acting as a group and the debtor to roll over payment due to the former from the later over a certain period and under new terms and conditions falls under either debt rescheduling or refinancing. This involves the provision of new money to replace maturing debt. The four element of restructuring are:

- I. Rescheduling of the principle of a part or all of an existing loan by postponing repayment i.e. rearranging maturities and grace period involves the rescheduling of the interest payment.
- II. Refinancing of an existing loan by raising fresh or complementary fund to meet existing obligation that is making provision for new credit's with proceeds to be used to repay outstanding loans
- III. Restoring of trade-related bank credit lines
- IV. Persuading the financial community to restore inter-banks lines of credit to a certain minimum level.

3.0

METHODOLOGY

MODEL SPECIFICATION

The Debt-Cum-Growth model regression adopted by Elbadawi *et al* (1996) to analyze the impact of external debt on economic growth of nine developing countries spanning through America, Asia and the Middle East. However, the model will be modified to capture the effect of external debt on economic growth and investment by adopting the following variables: Gross Domestic Product, Reserve to External Debt, Private Investment, and Exchange Rate, Debt Service Ratio, Interest Rate and Inflation Rate.

3.1

MODEL FORMULATION

The Debt-Cum-Growth Model will be broken into two equations, although the two models will be combined for the purpose of analysis. The two models are specified as follow: **(I) GROWTH MODEL.**

If we adopt the growth rate as a proxy for economic growth in implicit form, we have:

$$GDP = f(\text{RED}, \text{PVI}, \text{EXR}, \text{DSR}, \text{Ut}) \text{-----5}$$

Where

GDP = Gross Domestic Product

RED =Reserve to External Debt

PVI = Private investment

EXR = Exchange Rate

DSR = Debt Service Ratio

Ut = Error term / stochastic error term
 In explicit form

$$\text{Log GGDP} = \beta_0 + \beta_1 \text{Log RRED} + \beta_2 \text{Log PVI} + \beta_3 \text{Log EXR} + \beta_4 \text{Log DSR} \quad (6)$$

-Where $\beta_0, \beta_1, \beta_3, \beta_4$ are elasticity parameters of the respective variables and Ut is the stochastic error term.

Appiori Expectation

The expected signs and relationship from the equations are as follows:

- GDP and ratio of reserve to external debt is expected to be negative, this is because of the debt overhang effect. The reserve that has to be used to boost the strength of local currency is being used to service debt. As a result, the money left in the economy to develop infrastructure and other things will be depleted and the GDP will reduce.
- GDP is expected to have a strong positive relationship with foreign private investment. The more the inflow of capital into the economy in the form of capital investment which creates employment, thus the income will be sporadic and national output will increase.
- The relationship between exchange rate and GDP is expected to be positive. It will be positive when the value of exchange rate is devalued against other currencies.
- Lastly, GDP and service ratio are expected to be negative, this is because most of the money that ought to be used to boost the country's budget and to stimulate it has been used to service debt.

(II) INVESTMENT MODEL

If the private Investment in the economy is adopted as a measure of economic growth, we shall have the following implicit equation:

$$\text{PVI} = f(\text{EXR}, \text{INT}, \text{INFR}, \mu_t) \text{-----7}$$

Where:

- PVI = Private Investment
- EXR = Exchange Rate
- INT = Interest Rate
- INFR = Inflation Rate
- Ut = Stochastic Error term

In explicit form

$$\text{PVI} = a_0 + a_1 \log \text{EXR} + a_2 \log \text{INT} + a_3 \log \text{INFR} + \mu_t \text{-----8}$$

Where

a_1, a_2 and a_3 are elasticity of the parameters of the respective variables.

Appiori Expectation

The expected sign from these equations are as follows:

- The relationship between investment and exchange rate is expected to be positive.
- The relationship between investment and interest rate is expected to be negative.
- The relationship between investment and inflation rate is expected to be negative.

Hypothesis: The main hypothesis to be tested in this study is stated in null and alternative form as shown below:

Ho: External debt has no significant effect on the Nigerian economic growth and Investment.

Hi: External debt has a significant effect on the Nigerian economic growth and Investment.

4.0 DATA ANALYSIS AND INTERPRETATION

The result below is formulated to capture the impact of external debt on the Nigerian economy.

$$\text{GDP} = a_0 + a_1 \text{RED} + a_2 \text{EXR} + a_3 \text{PVI} + a_4 \text{DSR} + a_5 \text{INT} + a_6 \text{INFR} + \mu_t$$

$$\text{GDP} = 111.063 - 34.720 \text{RED} + 0.857 \text{EXR} - 0.001 \text{PVI} - 105.693 \text{DSR} + 0.638 \text{INT} + 0.396 \text{INFR}$$

Table 4.1: SUMMARY OF REGRESSION RESULT

| Variables | Coefficient | Standard Error | T-stat | Sig |
|-----------|-------------|----------------|--------|-------|
| Constant | 111.063 | 78.995 | 1.406 | 0.180 |
| RED | -34.720 | 66.216 | -0.524 | 0.608 |
| EXR | 0.857 | 0.743 | 1.154 | 0.266 |
| PVI | -0.001 | 0.000 | -1.611 | 0.128 |
| DSR | -105.693 | 70.055 | -1.509 | 0.152 |
| INT | 0.638 | 1.011 | 0.631 | 0.538 |
| INFR | 0.396 | 0.722 | 0.543 | 0.592 |

R = 0.895

R² = 0.798, F.C = 56.344, D.W = 2.183

From the result shown above, it is observed that the constant is given to be 111.063; this indicates a positive relationship between the Constant and Gross Domestic Product (GDP). Although constant has no significant meaning to the Gross Domestic Product (GDP).

The coefficient of Reserve to External Debt (RED) is given as -34.720, indicating a negative relationship between Reserve to External Debt (RED) and Gross Domestic Product (GDP). A unit increase in Ratio of Reserve to External Debt (RED) will result to 34.720 unit decrease in Gross Domestic Product (GDP).

The coefficient of Exchange Rate (EXR) is given as 0.857, indicating a positive relationship between Exchange Rate (EXR) and Gross Domestic Product (GDP). This implies that a unit increase in Exchange Rate (EXR) will yield 0.857 unit increase in Gross Domestic Product (GDP).

The coefficient of private investment (PVI) is given as -0.001, thus depicting a negative relationship between private investment (PVI) and Gross Domestic product. (GDP). A unit increase in private investment (PVI) will result in 0.001 unit decrease in Gross Domestic Product (GDP).

Also the coefficient of Debt Service Ratio (DSR) is given as -105.693; this indicates a negative relationship between Debt Service Ratio (DSR) and Gross Domestic Product (GDP). A unit increase in Debt Service Ratio (DSR) will yield 105.693 unit decreases in Gross Domestic Product (GDP).

The co-efficient of Interest Rate (INT) is given as 0.638 which implies that there exist a positive relationship between Interest Rate (INT) and Gross Domestic Product (GDP). A unit increase in Interest Rate (INT) will result in 0.638 unit increase in Gross Domestic Product (GDP).

The result also shows a positive relationship between Inflation Rate (INFR) and Gross Domestic Product (GDP). A unit increase in Inflation Rate (INFR) will result in 0.396 unit increase in Gross Domestic Product (GDP).

At zero level of RED, EXR, PVI, DSR, INT and INFR, GDP will be equal to 111.063.

4.1 CO-EFFICIENT OF MULTIPLE DETERMINATIONS (R²)

The correlation co-efficient (R) of the regression is 0.895 (i.e. 89.5%) which indicates a very strong positive relationship between the dependent variable (GDP) and the independent variable (RED, EXR, PVI, DSR, INT, & INFR). The co-efficient of determination (R²) is 79.8% (i.e. 0.798) showing that 79.8% of the variation in dependent variables (GDP) has been explained by the independent variables. While 20.2% remain unexplained in the model. With an R² value of 79.8% the strong positive relationship is further confirmed. The adjusted R² measures the goodness or fit of the model.

From the expected result, it was found that the relationship between the dependent variable and independent variables correspond with our expectations.

Table 4.2: SUMMARY OF T-TEST

The summary of T-test obtained from the regression result is given below:

| Co-efficient | t-calculated | t-tabulated @ 95% | Decision | | |
|--------------|--------------|-------------------|----------------|----------------|---------------|
| | | | H ₀ | H ₁ | |
| Constant | 1.406 | 2.131. | Accept | Reject | Insignificant |
| RED | -0.524 | -2.131 | Reject | Accept | Significant |
| EXR | 1.154 | 2.131 | Accept | Reject | Insignificant |
| PVI | -1.611 | -2.131 | Reject | Accept | Significant |
| DSR | -1.509 | -2.131 | Reject | Accept | Significant |
| INT | 0.631 | 2.131 | Accept | Reject | Insignificant |
| INFR | 0.548 | 2.131 | Accept | Reject | Insignificant |

Decision Rule

$t^c > t^t$ Accept H₁ Reject H₀

$t^c < t^t$ Accept H₀ Reject H₁

The decision rule is that, if t-calculated is greater than t-tabulated ($t^c > t^t$), we reject null hypothesis (H₀) and accept the alternative hypothesis (H₁) and vice-versa.

Form the above, Reserve to External Debt (RED) Private Investment (PVI) and Debt Service Ratio (DSP) are statistically significant since their $t^c > t^t$ i.e. (0.524 > -2.131, -1.611 > -2.131 and -1.509 > -2.131) while Exchange Rate (EXR), Interest Rate (INT) and Inflation Rate (INFR) are statistically insignificant since $t^c < t^t$ i.e. (1.154 < 2.131, 0.631 < 2.131 and 0.548 < 2.131).

Table 4.3: SUMMARY OF THE F- CALCULATED

| | f-calculated | F-tabulated | Decision | | |
|---------------|--------------|-------------|----------------|----------------|-------------|
| | | | H ₀ | H ₁ | |
| Overall model | 58.344 | 2.79 | Reject | Accept | Significant |

The table above shows that the model formulated and tested (i.e. $GDP = f(\text{RED, EXR, PVI, DSR, INT, INFR})$ is statistically significant since the f-calculated is greater than f-tabulated i.e. ($f^c > f^t$). This indicates that the model is good fit.

5.0 CONCLUSION AND RECOMMENDATION

The findings of this study confirm that both debt overhang problem and the crowding out effect are prevalent in Nigeria. The main reason for external borrowing is to stimulate growth, the current external debt as a ratio of GDP seems to agree with this. Also the exchange rate shows a positive relation with Gross Domestic Product (GDP), this confirms that volatility of Nigerian exchange rate still increase GDP. The Private Investment which is measure of real and tangible development showed a negative relationship. This will adversely affect the economic growth, for a nation to grow, investment in infrastructures, small, medium and large scale enterprises that can boost growth in all other sectors. If the available funds (internal and external) are not well utilized into viable project that will benefit the economy, investment will decline.

Base on the above observations the following recommendations are made:

- i. Government should put in place appropriate measures aimed at the optimal use of borrowed funds so that servicing such funds will not invoke economic crisis with its growth rate.
- ii. The use of more superior method to negotiate for fixed interest payment and varying amortization schemes should be adopted by the government. Nigeria should seek multi-year rescheduling rather than year-by-year basis.
- iii. The federal government should lay down well considered guidelines for external loans. Defining the purpose, duration, moratorium requirements and commitments, negotiation fees etc. including the conditions under which the government can approve and guarantee external loans.

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