



## An Empirical Analysis of Public Borrowing and Economic Growth in Nigeria

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### Abstract

This study seeks to evaluate the impact of public borrowing on economic growth in Nigeria using time series data from 1980 to 2018. Specifically, the study seeks to analyze the effect of domestic debt (proxy by Federal Government Bonds-FGB) and external debt (proxy by International Monetary Fund Loan-IMFL) on Nigerian's Gross Domestic Product (GDP). To achieve this objective, secondary data was collected from the Central Bank of Nigeria Statistical bulleting and the Debt Management Office of Nigeria. A multiple regression model involving the dependent variable (GDP) and the independent variables (FGB and IMFL) was formulated and subjected to econometric analysis. These variables were adjusted with the Jarque-bera test of normality while the correlation result was used to check the possibility of multi-collinearity among the variables. The t-test was used to answer the research questions and test the formulated hypotheses at the 5percent statistical level. Results from the analysis show that a positive relationship exists between IMF Loan and Nigeria's gross domestic product, while a negative relationship exists between FG Bonds and Nigeria's gross domestic product, which violates the Keynesian theory of public debt. The study concludes that both domestic and external debt significantly affect economic growth in Nigeria. Therefore, it was recommended that public borrowing should be efficiently used and contracted solely for economic reasons and not for social or political reasons as this will help to avoid accumulation of debt stock overtime.

**Keywords:** Federal government bond; IMF loan; Keynesian theory of public debt.

## 1. Introduction

A major achievement of the Federal Government of Nigeria (FGN) in the year 2018 was the reduction of public borrowings. Up until then, the level of debts in Nigeria as a developing economy was not encouraging considering the level of human capital and enormous resources available in the country. Government's policies on borrowings and expenditure have over time failed to address necessary economic growth within the country. The issue of public borrowings in Nigeria has therefore prompted series of debate among scholars, particularly as it concerns the impact on economic growth.

The Nigerian government, through its apex bank, embarked on revenue driven policies earlier in 2020 to cushion any negative impact of domestic borrowings arising from non-performing loans in the nation's economy during the period of the global pandemic (covid-19). However, this proposed action has been debated by professionals and academic scholars in Nigeria. Before Covid-19 pandemic, reports from the country's Debt Management Office (DMO) had revealed that external debt reduced from USD29.59 billion in the third quarter of 2018 to USD21.59 billion in the fourth quarter (DMO, 2018). The current fiscal policies have however failed to sustain this decline.

Nigeria, being a mono-product economy and relying solely on revenue from petroleum as the major driver of the economy has been bedeviled by the crisis in the world oil market. In an attempt to keep the economy going on the right track, successive governments have adopted regular acquisition of huge sums of both internal and external debts to finance infrastructural facilities in order to boost economic growth in the country. Given, the current global pandemic where all countries are independently striving for financial survival, then the issue of lending by surplus countries to non-surplus countries becomes a matter of close allies and symbiotic relationship.

Pattillo (2002) opine that reasonable degrees of borrowing by the developing countries are likely to enhance their economic growth and expansion. When economic growth is improved (at least more than 5percent growth rate), the country's poverty situation may very well be positively affected. To foster growth, developing countries at first stages of development borrow to augment what they have because of dominance of small stocks of capital, hence, they are likely to have investment opportunities with rate of return greater than that of their counterparts in developed economies. This will be possible as long as borrowed funds and some internally ploughed back money are properly utilized for productive investment and do not suffer from macroeconomic instability which can distort

economic incentives in those economies. [Okonjo-Iweala et al. \(2003\)](#), opine that countries borrow for two wide reasons; firstly to attain higher investment and improving health, education and security, and secondly, to fund transitory balance of payment deficits.

[Sulaiman and Azeez \(2012\)](#), stated that developing countries contracted large amount of bills often at highly concessional rates of interest especially from the 1970s. It had been thought that such loans would place the countries (such as Nigeria), at a faster development journey through higher investment and rapid progress. But interestingly, the situation has not been as expected. Before the year 2019, most Nigerians assume that a high level of debts indicate low economic growth and development. However, research findings have suggested otherwise. For example, [Were \(2011\)](#) argue that “huge external debt does not necessarily imply a slow economic growth; it is a nation’s inability to meet its debt service payments fueled by inadequate knowledge on the nature, structure and magnitude of the debt in question”. This describes the situation in Nigeria, where economic instability and insincerity from the government have created debt burden on the nation’s economy. Insecurity and high cost of governance, among others have also weakened the country’s ability to service her debt. It is against this bedrock, that this study investigates the impacts of public borrowings on economic growth in Nigeria, focusing on Federal Government Bonds (FGB) and loans from the International Monetary Fund (IMFL).

The remainder of this study is arranged thus; section two gives the theoretical review; section three provides the research methodology while section four reveals the results and the discussion on findings. The last section provides the conclusion and policy recommendations.

## 2. Literature Review

The Keynesian theory of public borrowing was adopted as the theoretical framework of this study. The Keynesian economics theory originated from the work of a renowned British economist, John Maynard Keynes. Keynes (1930) postulation serves as theoretical underpinning to many macroeconomic policies today ([International Monetary Fund, 2014](#)). The theory considers fiscal policy as the best policy that brings about growth and development in any economy since it acts in the interest of the general public. The Keynesian theory holds that domestic borrowing impact positively on economic growth, through the stimulation of aggregate demand which in turn increases production, thereby creating more employment.

[Bivens and Irons \(2010\)](#) opine that if a country is experiencing a trend of an increasing public borrowings, the concerned investors may be worried about the capabilities of that country to pay its debts to the creditors. This may eventually result to financial crisis in the economy. As a result of this, the creditors will ask for higher interest rate as a safety and profitable measure for them to keep financing the deficits. This phenomenon can distort the level of economic growth, especially if the ratio of public debt to gross domestic product (GDP) is higher than the 30percent threshold. This opinion has been corroborated by findings based on research conducted on some advanced and emerging economics. For example [Reinhart and Rogoff \(2010\)](#) argues that a country with more than 60percent external debt out of GDP, experiences low GDP growth rate per annum by 2percent.

Further argument by [Panizza and Presbitero \(2012\)](#) reveal that high public debt does not affect economic growth negatively, especially for advanced economies. According to them, most of the debts in advanced countries are financed through internal sources. From macroeconomic perspective, high expenditures spent by the government stimulate economic growth. However, if the expenditure exceeds the level of revenues generated by the government, it results to budget deficit. The government can then borrow money to finance the deficit from domestic or external source.

Globally, many scholars have conducted empirical studies on the relationship between public borrowing and economic growth. [Ahmed and Shakur \(2011\)](#), analyzed the long-run and short-run relationships between external debt and the real sector in Pakistan. They examined the dynamic debt service and capital stock and labor force fitting the production function using annual data for the entire period of 1970-2003. The basic model was derived from the neoclassical production function by incorporating the external debt service variable as suggested by [Cunningham \(1993\)](#). The results show that debt servicing has a negative effect on the productivity of labor and capital. The estimated error correction term shows the existence of a significant long-run causal relationship among the specified variables, while in the short run, unidirectional causality is reported from debt service to GDP. These suggested that debt as an important factor in overall debt scenario in Pakistan.

[Onel and Utkulu \(2006\)](#) has model up the long run sustainability of Turkish external debt with structural changes. To investigate the sustainability of Turkey’s external debt, the model derived from the basic solvency condition for international borrowing equation. Identically, in the long run, a country is in the solvent conditions if the future external debt equal to zero. This followed by [Hakkio and Rush \(1991\)](#) using cointegration approach with structural break analysis. In order to identify the effect of structural break to the empirical evidence, they used Divot and Andrew’s unit root; and Gregory and Hansen’s co-integration tests. The empirical results show that the external debt of Turkey is weakly sustainable in the long-run and thus the country is solvent without any structural breaks. This implies the Turkey’s external debt is weakly sustainable.

[Francis and Armstrong \(2016\)](#) investigate the connection of internal debts on profit in selected manufacturing firms in Poland. They argue that there are compelling reasons why manufacturing firms uses debts as an essential part of management. However, the manufacturing firms were used as proxy for gross domestic product. They discuss that exploring the relationship of debts and profit has significant commercial outcomes. Not only do those outcomes help to identify potential problems, but they also help preserving corporate reputation, and to mitigate litigation against company which lead to increased legitimacy. This result is supported by [Bhimani \(2009\)](#) who opines that internal debts in mining firms leads to higher corporate legitimacy and good performance.

Using a sample of Chinese manufacturing firms, [Mua and Douglas \(2009\)](#) examine the effect of external debts management strategy over performance of new product development. They find that external debt management strategies that focus on technological, organizational, and marketing factors, individually and interactively improve the performance of new product development.

Similarly, [Gordon et al. \(2009\)](#) examine the relation of external debts and profit management and general performance of selected manufacturing firms in Brazil. They argue that the relation of external debts and performance is contingent upon five firm-specific factors namely; environmental uncertainty, industry competition, firm complexity, firm size, and board of directors' monitoring. In addition, they submit that for implementing external debts policy, firms should pay attention to the contextual variables that are surrounding them.

In Pakistan, [Sheikh et al. \(2010\)](#), investigated the impact of domestic debt on economic growth for the period covering 1972 to 2009. Using OLS technique, their findings revealed that the stock of domestic debt affects economic growth positively and that there is an inverse relationship between domestic debt servicing and economic growth. The study however observed that the negative impact of domestic debt servicing on economic growth is stronger than positive impact of domestic debt on economic growth. The study therefore suggested economic policies to settle outstanding domestic debt.

In Africa, [Maana et al. \(2008\)](#), analyzed the economic impact of domestic debt on Kenya's economy. The study examined the effect of domestic debt on real output by using a modified Barro growth regression model. The results indicated that increase in domestic debt has a positive but insignificant effect on economic growth. The author suggested that the government should employ wider reforms that promote investment in treasury bonds and encourage institutional investors.

Similar empirical studies have also been conducted in Nigeria. [Adofu and Abula \(2010\)](#), investigated the empirical relationship between domestic debt and economic growth in Nigeria. Using OLS regression technique with time series data spanning 1986–2005, the study revealed that high budget deficit, inflation rate and government expenditures affect domestic debts, thereby negatively impacting economic growth. The study suggested that government should encourage alternative source of increasing its [Ajao and Ogiemudia \(2013\)](#) also studied the effect of foreign debt management on sustainable economic development with specific emphasis on Nigeria over the period of 1979 to 2009. Using the OLS method of data analysis and error correction model to ascertain the long run relationship of the established model, they found out that, access to external finance strongly influence the economic development process of Nigeria and other countries. The study further revealed that the economic effect is more significant in Nigeria.

[Onyeiwu \(2012\)](#), examined the effect of domestic debt on economic growth in Nigeria by using OLS, Error Correction and parsimonious models to analyze quarterly data between 1994 and 2008. Results from the study indicated that domestic debt holding of government is far above a healthy threshold of 35percent of bank deposit, suggesting a crowding out effect on private investments. This shows that domestic debt has a negative effect on economic growth in Nigeria. In the work of [Aminu et al. \(2013\)](#), it was asserted that domestic debts can lead to high growth levels in Nigeria, if properly managed. A major implication of the result is that concerted effort should be made by policy makers to manage debts effectively by channeling them to productive activities (real sector), so as to increase the level of output in the country.

Still in Nigeria, [Ozurumba and Kanu \(2015\)](#) investigated the impact of the different components of domestic debt on economic growth of Nigeria using multiple regression technique. The authors discovered that FGN Bond proved to have a positive significant relationship with economic growth in the short-run, with development stock maintaining a significant negative relationship. However, Treasury Bills and the lagged value of GDP variables were positively and significantly related in the lon-run. Furthermore, [Onyele and Nwokoacha \(2016\)](#) studies the various sources of public funds and their resultant effects on economic growth in Nigeria. The results of the study revealed that national savings and external debt exerted a negative effect on economic growth. It could be inferred from the study that as total revenue dwindles, the government resorts to borrowing in order to stimulate the economy but the resultant effect is that economic growth starts depleting as a result of changes in total government revenue. This is an indication that aggregate government revenue alone is not sufficient enough to foster economic growth in Nigeria without a complementary fiscal role of debt. Similar empirical study was also conducted in Nigeria by [Igbodika et al. \(2016\)](#), using data covering the periods 1987 to 2014. The result of the study indicates that gross domestic product is negatively affected by the level of domestic and external debts.

After reviewing various literature on the impact of domestic and external borrowings on economic growth, it was observed that some studies proxy economic growth with the production outputs while others proxy economic growth with gross domestic product. However, a major gap was noticed in the literature, indicating that most of the scholars do not emphasize on the fact that economic growth is dependent on many macroeconomics, of which government debts are major part of. Various government fiscal and monetary policy could be use efficiently to manage the level of debts in Nigeria. Therefore, it is not enough to consider the debt factor alone but all other factors that are tied around both domestic and external debt which impacts on the economic performance. These include prevailing interest rate on both domestic and external debt, the exchange rate which is tied mostly to external debt and so on. However, the use of bonds and IMF lending, as additional debts instruments have been overlooked by previous studies as it concerns economic growth in Nigeria. Therefore, this study focuses on the impact of federal government bonds and IMF loans, as proxies for public borrowing on economic growth in Nigeria.

### 3. Methodology

Secondary data covering the periods 1980 to 2018 was sourced from the Central Banks of Nigeria (CBN) statistical bulletins and also from the country's Debt Management Office (DMO). This serves as the time series data for the hypothesized variables in this study. The variables include economic growth (dependent variable) and public borrowing (independent variable). The country's Gross Domestic Product (GDP) was used as a measure of economic growth, while the data for public borrowing consists of the federal government bond (internal debt) and IMF loan (external Debt).

In order to account for the impacts of public borrowings on economic growth in Nigeria, a multiple regression model for the study is hereby specified as follows:

$$GDP = f(FGB, IMFL)$$

The above model is hereby written in log —linear form as:

$$GDP_t = \beta_0 + \beta_1 FGB_t + \beta_2 IMFL_t + \mu_t$$

Where:

GDP - Gross Domestic Product (a proxy for Economic growth)

FGB - Federal Government Bonds (a proxy for Domestic Debt)

IMFL - International Monetary Fund Loan (a proxy for External Debt)

$\beta_0$  = Intercept Parameter

$\beta_1, \beta_2$  = Regression co-efficient

$\mu$  = Stochastic Error Term

$$f^i(FGB) > 0$$

It is expected that Federal Government Bond will lead to economic growth and infrastructural development.

$$f^i(IMFL) > 0$$

It is expected that loan from IMF should increase infrastructural development and the general economic growth of the country.

The estimation technique consists of an approach designed to capture the relationship between the dependent and independent variables, while avoiding spurious influences. This is the multiple regression analysis which has received prominent attention in literature also popularly called the Ordinary Least Square technique.

### 4. Research Findings and Discussion

This study specifies a model using federal government bonds and IMF loan as proxy for domestic and external debts in Nigeria. The choice for this model is motivated by the model and decision criteria used by other studies such as the work of [Fasoye \(2018\)](#).

Table-1. Regression Output

Dependent Variable: GDP				
Sample (adjusted): 1980 2018				
Included observations: 39 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.652319	2999849.	3.884302	0.0000
FGB	-350444.0	376183.7	-0.931577	0.0000
IMFL	2.256917	1.687864	1.337144	0.0000
R-squared	0.971171	Mean dependent var		15024495
Adjusted R-squared	0.967656	S.D. dependent var		29468293
S.E. of regression	5299745.	Akaike info criterion		33.92296
Sum squared resid	1.150015	Schwarz criterion		34.15915
Log likelihood	-791.1895	Hannan-Quinn criter.		34.01184
F-statistic	276.2381	Durbin-Watson stat		0.900521
Prob(F-statistic)	0.000000			

Source: Eview-output, (2020)

Table 1 shows the relationship between Gross Domestic Product (GDP) and all variables mentioned in the model. The GDP represent the dependent variable and the independent variables are IMFL, and FGB. The regression result shows the relationship between International Monetary Fund Loan (IMFL) and GDP. The relationship between IMFL and GDP is positive of 2.256917. From the above regression result, we can deduced that the positive regression result means that one percent increase in IMFL will lead to an equivalent increase in GDP. The federal government bonds (FGB) shows a negative relationship with GDP of -35044. This means that one percent increase in FGB will lead to a corresponding fall in GDP. The relationship between FGB and GDP is negative. The federal government bond plays a significant impact on gross domestic product because most business operating in Nigeria are driven by adequate infrastructure which are usually finance with bonds.

In the result, the coefficient of determination is very high. It shows that about 97.1 percent of the total variations in GDP are explained by all the independent variables in the model. The adjusted  $R^2$  also indicates that about 96.7 percent of the total variations in GDP are explained by the regression model. The F-statistic is significant at 5 percent critical level. It indicates that the joint variations of the model are significant. However the Durbin Watson



value indicates a presence of positive serial correlation of 0.900. This however, may have contributed to the high coefficient of determination. In this result, the F statistic of the model is 276.2 while the probability of F-statistics is 0.000000. This implies that there is a significant relationship exist in the model and all the variables in the model are statistically significant.

Furthermore, Table 1 shows the T-test of federal government bonds (FGB) and gross domestic product (GDP) of -0.931577. This value of -0.931577 is used to compare a standard 5% significant level. The acceptance or rejection of the hypothesis is based on the comparison of -0.931577 and 5% significant level base on the decision rule of testing hypothesis. The T-tabulated value is compared with that of T-calculated having noted that the T-tabulated is 5%. Since the T-calculated is -0.931577 which is compared to 0.05 i.e.  $-0.931577 < 0.05$  we reject the alternative hypothesis and accept the null hypothesis that federal government bond does not significantly affect gross domestic product. Therefore, one of the conclusions of this study is that FGB does not affect GDP. This however, may negate a priori expectation that federal government bond (FGB) is expected to affect economic growth positively.

The regression result shows the T-test of international monetary fund loans and gross domestic product (GDP) of 1.337144. This value of 1.337144 is used to compare a standard 5% significant level. The acceptance or rejection of the hypothesis is based on the comparison of 1.337144 and 5% significant level. However, the probability value of 0.0000 shows that IMFL is statistically significant when compared with other variables whose probability value is 0.0000. In addition, a variable is said to be statistically significant if its probability value is 0.0000.

The T-tabulated value is compared with that of T-calculated. Since T-calculated is 1.337144 which is compared to 0.05 i.e.  $1.337144 > 0.05$  we reject the null hypothesis and accept the alternative hypothesis that there is a significant relationship between international monetary fund loan and gross domestic product. Therefore, one of the findings of this study is that IMFL affect GDP.

## 5. Conclusion and Recommendations

The major findings of the study are summarized below:

- i. The federal government bond (FGB) shows a positive relationship with GDP and the t-test of hypothesis shows that FGB affect GDP.
- ii. The international monetary fund loan (IMFL) coefficient of 2.2569 shows that IMFL is helping the Nigeria economy. The hypothesis shows that IMFL affects GDP.
- iii. The coefficient of determination was very high. It shows that 97 percent of the independent variables are captured by the dependent variable. However, the model shows a good fit.
- iv. The study also found out that all the variables used in the model are statistically significant and that there is a positive serial correlation.

From the result of this study, it can be concluded that public debts are used to aid economic growth in Nigeria. However, to ensure that the use of public debts such as bonds and loan from IMF to aids economic growth in Nigeria. It is advisable that the rates on the debts are controlled. When debts rate is efficiently managed, economic activities will increased which will positively affect gross domestic product. In addition, when some of the transaction costs and information problems between savers and investors are resolved, the impact of debts will be minimized. Moreover, empirical studies have shown repeatedly such as the work of *Najia et al. (2017)* that effective use of debts shows positive impacts on economic growth. Therefore, we recommend that any attempt made by central bank of Nigeria to increase economic growth through continuous use of internal and external debts should be stable. This will not only promote but will also improve economic performance in the country. We also recommend that future studies on this subject should investigate the effect of sources of internal and external debts on Nigeria's economic growth.

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