

# Impact of External Debt on Economic Growth in Nigeria (1981-2019)

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## **Abstract**

*This study examined the impact of external debt on economic growth in Nigeria (1981-2019). Real gross domestic product was used to capture economic growth which is the dependent variable while external debt stock, external debt service payments, and exchange rate were the independent variables. External debt stock and external debt service payments were used to capture the external debt burden in Nigeria. The research adopted the Ordinary Least Square (OLS) regression method to estimate the model of the study. The result from the estimated model above, the intercept being positive (17237.15) shows that there exist a direct and positive relationship between the dependent variable and the independent variables with the Nigerian economic growth, under the reviewed period. The coefficient of EDS (External Debt Stock) being negatively signed (- 5.128359) indicated that a unit increase in EDS is likely to lead to about -5.128359 decrease in GDP, which is in conformity with the research a priori expectation of this study. The negative relationship between external debt and economic (growth might be due to the fact that even though debt provided the much needed fund, it might not have been used on productive ventures where the returns should be more than the interest payable. This may be due to poor policy formulation, misappropriation, embezzlement and other governmental corrupt practices. From the results of the study, EDSP (External Debt service payment) has a positive relationship with the economic growth in Nigeria, the coefficient of EDSP is 11.72086 which implies that a unit change in EDSP will lead a unit change in GDP by 11.72086, These findings negate the a priori expectation of this study. EXR has a positive relationship with RGDP (228,4047), thus conforming to the a priori expectation and it is significant on GDP. The implication of EXR connotes that the rate at which Naira is being converted to a key currency (US dollar) allowed the nation to service its debt properly without deteriorating economic growth, hence, Nigeria did not suffer heavy debt burden because the Naira competed well in global market.*

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## **I. Introduction**

Debt has been in existence during the period of Adam and Eve. Debt mostly occur due to lack of satisfaction of human want. That is why Olukunmi (2013) says that human wants are insatiable and the means of resources available for the satisfactions of wants are limited in their supply. In individuals and national lives, the above assertion is true. To meet national wants amidst limited resources, nations might resort to borrowing. Borrowing creates debt. Debt therefore, refer to as the aggregate of all claims against the government held by private section of the economy or by foreigners, whether interest bearing or not less, any claim held by the government against private sectors and foreigner Kayode, Oyejide and Soyede (2014). According to Udoka and Ogege (2012), view debt as the resources of money in use in an organization which is not contributed by its owners and does not in any other way belong to them. Shortfall in domestic saving to finance productive activities compels nations to borrow Ezeabasili and Momodu, (2012).

Debt could be within a nation's boarder (internal) or from outside (external). Therefore, internal debt are those debt incurred within the country. While, external debt may be defined as a debt owed to non-residents repayable in terms of foreign currency, food or service World Bank (2014). The effect of external on investment and economic growth of a country has remained questionable for policy makers and academics alike. There has not been consensus on the impact of external debt on economic growth. External debt may be used to stimulate the economy but whenever a nation accumulates substantial debt, a reasonable proportion of public expenditure and foreign exchange earnings will be absorbed by debt servicing and repayment with heavy opportunity costs. Albert, Brain and Palitha, (2015). Excessive external debt constitutes obstacle to sustainable economic growth and poverty reduction Sanusi (2013).

Some contributors argue that external debt has positive effect on the economy growth from the point that external debt will increase capital inflow and it can be used for productive ventures, accelerates the pace of

economic growth. The capital inflow may be associated with managerial know-how, technology, technical expertise as well as access to foreign market. *The* above is in concord with the views of the Keynesian theory of capital accumulation as a catalyst for economic growth. However, external debt may have negative impact on investment through debt overhang and credit-rationing problem Eduardo, (2017). Debt overhang phenomenon is when the considerable resources are used for debt servicing such that it prevent the economic growth. It becomes a tax on domestic production such that the amount spent hinder meaningful economic growth activities as it reduces resources available to government to implement growth oriented economic policies. Credit rationing effect arise when a country is unable to pay their debt.

### **Statement of the Problem**

According to Debt Management Office (2016). Nigeria's external debt profile has become a source of concern to everyone as over US\$32 billion were used for debt services between 2001 and 2019.

Nigeria mostly involve in highly indebted like poor countries that has low economic growth and low per capital income, with domestic savings insufficient to meet developmental and other national goals.

According to Selvanathan, (2015) Nigeria exports were primary commodities with export earnings, too small to finance import which are mostly capital intensive (Manufactured) goods which are comparably more expensive.

Due to the quest for economic growth and development which compelled Nigeria to acquire external debt.

The problem encounter with debt and servicing prompted Sanusi (2013) to warn that rising Nigeria's debt obstacle to economic growth and development. According to the view by Compbell (2019) said that government debt can easily become a burden on the economy weakening its foundation, warning that the economy authorities should recognize that accumulating debt also means accumulating risk by increasing claims on unrealized future income.

Nigeria expectation was that external debt would bring about economic growth and development to the country. But over emphasis on negative impact of debt will cause morbid fear of debt, resulting in debt avoidance when it would have stimulated the economy by bringing in the needed capital for infrastructural development and investment.

All these and many more prompt this researcher to embark on this research just to find out the relevant of borrowing to the growth and economic development of Nigeria and if there is any, thus the growth and development presently experience commensurate with the level of debt incurred in Nigeria?

It is clear that there were divergent views on the impact of external debt on the economy hence, the need for policy makers to have good appreciation of its impact on the economy at various levels of debt accumulation to enable them make informed decisions. So as, there are periods or situation of which debt is desirable and necessary, in some time debts can also be avoided.

### **Objectives of the Study**

The main purpose of the study is to determine whether external debt has significant relationship with economic growth in Nigeria. However, we specifically want to:

1. Ascertain the impact of external debt on Gross Domestic Product (GDP) in Nigeria.
2. Determine the effect of external debt servicing on Gross Domestic Product in Nigeria.
3. Establish the impact of exchange rate on Gross Domestic Product in Nigeria.

### **Research Question**

The following research question was set up from the objective of the study in order to determine whether external debt has cogent relationship with economic growth in Nigeria. The questions as follows:

1. What are the impact of external debt on Gross Domestic Product (GDP) in Nigeria?
2. What are the effect of external debt servicing on Gross Domestic Product (GDP) in Nigeria?
3. What are the impact of exchange rate on Gross Domestic Product (GDP) in Nigeria?

### **Research Hypotheses**

The study was guided by the following null hypotheses:

H<sub>01</sub>: External debt has no significant impact on Gross Domestic Product (GDP) in Nigeria.

H<sub>02</sub>: External debt servicing has no significant effect on Gross Domestic Product in Nigeria.

H<sub>03</sub>: Exchange rate has no significant impact on Gross Domestic Product in Nigeria.

### **Significance of the Study**

The burden of external debt has been a matter of great concern to the government of Nigeria and the nation as whole which has resulted in embarking upon drastic actions like dividing the nation's scarce resources in servicing of debts annually. This action has thus led to disinvestment in the domestic savings and the overall rate of growth.

This study seeks to investigate the direct impact of external debt burden on economic growth in Nigeria by finding a long run and causal relationship between external debt and economic growth. This study is significant as its findings will provide a basis which will aid policy makers in proffering policies aimed at managing the debt crisis situation in Nigeria.

### **Theoretical Framework Dependency Theory**

Dependency theory states that the poverty of the countries in the periphery is not only because they are not integrated or fully integrated into the world system, as it is often argued by free market economists, but because of how they are integrated into the system. From this standpoint a common school of thought is the Bourgeoisie scholars, who are of the view that the state of underdevelopment and the constant dependence of less developed countries on developed countries are as a result of their domestic mishaps. They believe that this issues can be explain by their lack of close integration, low level of technology, diffusion of capital, poor institution framework, bad leadership, corruption, and mismanagement etc. Momoh and Hundeyin (2019). The proponents of this school of thought see underdevelopment and dependency of the third world countries as being internally inflicted.

To this school of thought, a way out of the problem is for third world countries to seek foreign assistance in terms of aid, loan, investment, etc. And allow disrupted operations of the multinational corporations (MNCs).

According to Paul (2017), the underdeveloped nature of most third world countries are dependent on the West for virtually everything ranging from technology, aid, technical assistance, loan, to culture etc. The dependent position of most third world countries has made them to be susceptible and vulnerable to the machinations- of the western metropolitan countries and Breton woods institutions. Ajayi (2012).

### **Keynesian Theory**

Keynesian theory is of increasing government activity as catalyst to economic growth was deemed most appropriate to this study. This is an economy theory named after a British Economist, John Muynard Keynes. The theory is based on the concept that in order for an economy to grow and be stable, active government intervention is required. The Keynesian Economists argue that private sector decisions sometimes lead to inefficiency macroeconomic outcomes. Therefore, monetary policy action by central bank and fiscal policy action by the government are required to direct the economy. These actions will bring about stability in output over the business cycles. Keynes stated that during depression, a combination of two approaches must be applied viz: a reduction in interest rate (monetary policy), and government investment in infrastructure (fiscal policy). Both Keynesians and monetarists believe that both fiscal and monetary policies affect aggregate demand Blinder (2018). The monetary policy requires CBN to reduce interest rate to commercial banks and the commercial banks to do the same to their customers. Government investment in infrastructure injects fund into the economy by creating business opportunities, employment and demand. One of the sources of fund for infrastructural development is external borrowing during fiscal deficit. This implies that Keynesian theory which views capital accumulation as a catalyst to economic growth is supportive of external loans as it injects fund into the economy to increase economic activity resulting in growth. It therefore supports a positive relationship between external debt and economic growth.

### **History of Nigeria's Debt Crisis**

The phenomenon of external debt by Nigeria dates back to the colonia period precisely in 1958 when the sum of US \$28 million was contracted for railway construction Adepoju et al (2017). Between 1958 and 1977, debts constructed were the concessional debts from bilateral and multilateral sources with long repayment periods and lower interest rates constituting about 78.5 percent of the total debt stock Adepoju et al (2017).

According to Afrodad (2017), propose by Adami Ibrahim (2020), noted that Nigeria's external debts have been increase over time because of professional shortage of foreign exchange to meet their developmental needs. The fail of oil prices in the late 1970s has a devastating effect on government expenses.

Mohammad and Adamu (2020), asserted that it necessary for government to borrow in 1978 for balance of payment support and project financing. As a result of this government to promulgated decree No 30 of 1978 which limited the external loan the federal government could rise to ₦5billion. In the same year government made first "jumbo loan" market of US \$ 2.2 billion from the international capital market. This increases the nation's debt profile to US \$ 2.2 billion Afrodad (2017). Given this, Nigeria's external debt stock increased to US \$ 13.1 billion in 1989 CBN (2003). Due to Nigeria's inability to settle their import bills resulted

in the accumulation of trade arrears amounting to US \$ 9.8 billion between 1983 and 1988. The insured components were US \$ 2.4 billion while the uninsured were US \$ 7.4 billion Adepoju et al (2017). The insured component was rescheduled at the Paris Club, while the uninsured was reconciled with the London Club. This reconciliation which took place between 1984 and 1988 reduced the amount to US \$ 3.8 billion Adepoju et al (2017). The accrued interest of US \$ 1.0 billion was recapitalized. This brought the amount to US \$ 4.8 billion in 1988 and the debt was eventually refinanced. In 1990, Nigeria's external debt rose again to US \$ 33.1 billion CBN (2003). After a brief decline to US \$ 27.5 billion in 1991, it rose again to US \$ 32.6 billion at the end of 1995. As at 1999, Nigeria's external debt stock was US \$ 28,0 billion. 73.2 percent of this was owed to the Paris Club while the rest was owed to the London Club, the multilateral creditors, promissory note holders and others CBN (2003).

Furthermore, servicing and rescheduling of debt become problematic for Nigeria from around 1985 when its external debt rose to up US \$ 19 billion. Before then, Nigeria had experienced boom in oil revenue which was followed immediately by an unexpected decline. In 1980 Nigeria earned \$ 25 billion from oil. In 1982, it declined to \$12billion and further to \$6 billion in 1986 CBN (2003).

Government spending had remained high within this period and much of the project was finance through external borrowing. Since Nigeria was an OPEC member, it was not qualified for the soft-loan financing provided by multilateral and bilateral aid agencies to other countries at that time. As at end of 2004, Nigeria's debt stock had reached almost \$36 billion out of which \$31 billion was owned to the Paris club of creator Braun (2016).

According to Afrodad (2017) debt service payment for Nigeria's debts started on a soft, tolerable level in 1958 until it become a hard bargain year. Matter come to a head in 2003 when one of Nigeria's creditors, the Paris Club demands \$3 billion annually for debt service payment. Dr. Ngozi Okonjo-Iweala considered the payment economically unsustainable Iyoha (1996). She therefore negotiated with the club. The \$18billion debt cancellations for Nigeria in 2005 by the Paris Club and subsequent settlement of some outstanding debts reduced the total external debt of the country substantially.

According to Nathaniel et al, (2018), Nigeria's total external debt stock rose continuously from NGN8.32trillion in September 2013 to NGN22.7trillion in March 2017. The high debt made the World Bank and the International Monetary Fund (IMF) warn the country of the economic consequences of such huge debt. Even the Nigerian DMO warned that Nigeria's high debt services to revenue ratio could trigger a debt crisis. The Minister of Finance, however, described the situation as an "emotive issue" and made a strong and persuasive case for more foreign loans to ramp up the country's stock of infrastructure. While economists believe that borrowing is healthy for the economy and may help to maintain economic growth and development, the 172% leap within five years is worrisome. More worrisome still is the lack of evidence that the borrowed funds are being properly utilized. These situations undoubtedly may have negative implications for human development that is already in a deplorable condition in the country as the revenues that should have been used for human development will now be channeled to debt servicing and payback. It is therefore recommended that: the tax system in the country should be made effective to increase revenue.

According to Nathaniel et al (2018).in the generation; a high proportion of the government debt within the 2018/2019 fiscal years should be external; the federal government should borrow only to finance capital projects that will over lime, generate enough returns to pay off the debt. Also, the government should adopt alternative financing measures such as public private partnerships, and above all, the Federal Government should comply with the Fiscal Responsibility Act requirements in borrowing.

## **Empirical Review**

A number of research works have been carried out reviewing on the impact of external debt on economic growth in Nigerian.

According to Sulaiman and Azeez (2012) examined the effect of external debt on the economic growth of Nigeria. Gathering annual time series data from 1970-2010, they proxy gross domestic product for economic growth and internal debt, ratio of external debt to exports and exchange as independent variables. Employing econometric techniques of Ordinary Least Square (OLS), Augmented Dickey Fuller (ADF) unit root test, Johansen Co- integration test and Error Correction Model. The result of ADF shows that all the variables were stationary at first difference with the exception of inflation rate. Johansen co- integration depicts that all the exogenous variables except external debt has a positive long run relationship with GDP. The result of Error correction model shows that external debt has positive but insignificance relationship with GDP, external debt to export and inflation rate have negative and significant effect on GDP while exchange rate has a significant positive relationship with GDP.

Ozurumba (2013) examined the bearing of external debt findings on economic growth in Nigeria between 1969 and 2011. Using the vector error correction Model (VECM) approach, the found that London club

debt is directly related to economic growth while Paris club, multilateral club, and promissory debts are inversely related.

According to Ijirshar, Fefa and Godoo (2016) investigated the relationship between external debt and economic growth in Nigeria for the period of 1981-2014. They used both descriptive and econometric tools in empirically analyzing the time series data generated. The findings show a significant relationship between external debt and economic growth in Nigeria in a long run, while external debt servicing had both long run and short run negative effect on Nigeria economic growth. They recommend that external loan stock borrowed be effectively managed since it increases growth rate.

Ajayi and Oke (2012) employing OLS regression analyzed the effect of external debt burden on the Nigerian economy. The regression result indicated that external debt burden negatively affects national income which measure economic growth.

According to Monogbe (2016) empirically examined data pooled from 1981 to 2014 as an instrument for investigating intergenerational effect of external debt on economic performance of Nigeria. He found that total money supply, multilateral creditors and bilateral creditors which are proxy for external debt have positive and significant relationship with economic growth in Nigeria.

According to Ugwu and Nzewi (2016) propose by Uzoka et al (2018), evaluated the effect of external debt on economic growth parameters in Nigeria.

They employed ex post facto research design and the result show that positive relationship exists among debt and economic growth parameter (GDP, exchange rate, capital expenditure). They conclude that small external debt accumulation stimulates the economy while huge debts negative impact on the economy.

## II. Methodology

The aim of this research study is to examine the impact of external debt on the growth of the Nigeria economy. This chapter present the research methodology which throws more light into the empirical investigation conducted. Also in order to fully assess the impact of the eternal debt burden, a model with dependent that explanatory variables to be estimated is specified, a priori expectations of these variables, techniques of estimation and method of data analysis are all treated in this chapter.

### Model Specification

The main aim of this study is to examine the impact of External Debt Economic Growth in Nigeria 1981-2019. The model is specified in the functional form as follows:  
 $RGDP=f(EDS, DSP, EXR)$

#### The model is specified of its stochastic form:

$$RGDP: \alpha_0 + \alpha_1 EDS + \alpha_2 EDSP + \alpha_3 EXR + \mu \dots \dots \dots (1)$$

#### Where:

**RGDP** = Real Gross Domestic Product

**EDS** =External Debt Stock

**EDSP** = External Debt Service Payments

**EXR** = Official Exchange Rate

$\mu$  = Error terms

#### The model is specifiedof its log-linear form:

$$\text{Log RGDP: } \alpha_0 + \alpha_1 \text{Log EDS} + \alpha_2 \text{Log EDSP} + \alpha_3 \text{EXR} + \mu$$

### Identification of variables

**Real Gross Domestic Product** is a measure that reflects the value of goods and services produced in a given year. It is used to capture economic growth in this study because it is adjusted for inflation and as such provides a more accurate figure.

**External Debt Stock** is the amount at which the debt was contracted and it is used as a proxy for capturing external debt burden. The a priori expectation is a negative relationship between Real Gross Domestic Product and External Debt Stock i.e. the higher the external debt stock, the lower the economic growth.

**External Debt Service Payments** is the amount used in repaying the external debt. It is also used as a proxy for capturing external debt burden. The a priori expectation is a negative relationship between Real Gross Domestic Product and External Debt Service Payments i.e. the higher the debt service payments, the lower the economic growth.

**Exchange rate** is the price of a nation's currency in terms of another currency. It is included in the model because it is a macroeconomic indicator and it is also a monetary aggregate in the open economy. The a priori expectation is a positive relationship between Real Gross Domestic Product and Exchange Rate i.e. the higher the exchange rate, the higher the economic growth.

Real Gross Domestic Product (RGDP), External Debt Stock (EDS) and External Debt, Service Payment (DSP) were logged due to the large nature of their values. Exchange Rate (EXR) was not logged because it is a rate.

#### **A priori Expectation**

The following relationship is expected to exist between the variable based on the literature:

$$\frac{\partial GDP}{\partial EDS} < 0 \quad \frac{\partial GDP}{\partial EDSP} < 0 \quad \frac{\partial GDP}{\partial EXR} < 0$$

#### **Estimation Technique**

This study adopted Ordinary Least Square (OLS) regression method to estimate the model of the Study. The researcher employed this method because of its Blue Properties. The process of estimation is preceded by collecting data on each of the variable (Both dependent and independent) over a period of thirty-nine years (1981-2019).

#### **Economic Criteria**

This evaluation enables the researcher to ascertain the validity of the result obtained. The signs and magnitude of the parameters estimates will be established its conformity with their apriori expectation. Economic criteria will help the researcher to know when they are deviating from what is actually required. Statistical criteria; under this we shall use the;

- (i) t-test
- (ii)  $R^2$  - R Squared
- (iii) F-Statistics
- (iv)  $R^2$  - Adjusted R Squared
- (v) DW- Durbin Watson

#### **The t- test**

T-test is another type of statistical test involved in OLS technique which is defined as statistical hypothesis test follows a t-distribution under the null hypothesis. It can be used to determine if two set of data are significantly different from each other. A t-test is a statistical significance that indicates whether or not the difference between two groups average most likely reflect a "real" difference in the population from which the group were sampled. This is used to test the statistical significance of individual estimated parameter. In this research, t-test statistics is chosen because the population variance is known and the sample size is less than 30 ( $n < 30$ ).

#### **Decision Rule**

Reject the null hypothesis if the calculated value of t is (i.e.  $t_{cal} > t_{tab}$ ) with N-K degree of freedom at the chosen level of significance, otherwise accept the alternative hypothesis, meaning that the parameter is significant. In this study the chosen level of significance will be 5 percent (5%).

#### **The $R^2$ -R Squared**

R-squared ( $R^2$ ) is a statistical measure that represents the proportion of the variance for a dependent variable that's explained by an independent variable or variables in a regression model. Whereas correlation explains the strength of the relationship between an independent and dependent variable, R-squared explains to what extent the variance of one variable explains the variance of the second variable. So, if the  $R^2$  of a model is 0.50, then approximately half of the observed variation can be explained by the model's inputs.

#### **The F- Statistics**

This is used to test for the overall significance of model. The test aims at finding out whether the joint influence of the explanatory variable on the dependent variable is statistically significant.

#### **Decision Rule:**

If F calculated ( $F^*$ ) is greater than f-tabulated (i.e.  $F^*$ ) is greater than f-tabulated (i.e.  $F^*_{cal} > F_{tab}$ ). With the chosen level of significance with k-1 and N-K degree of freedom, we reject the null hypothesis, that is, we accept that the regression model is significant. But if  $F^* < F_{tab}$ , we accept null hypothesis, that is, we accept that the regression model is not significant with K-1 and N-K degree of freedom. The chosen level of significance in this test is 5 percent (5%).

#### **$\bar{R}^2$ -Adjusted R Squared**

The use of an adjusted  $R^2$  is an attempt to take account of the phenomenon of the  $R^2$  automatically and spuriously increasing when extra explanatory variables are added to the model. The adjusted  $R^2$  can be negative, and its value will always be less than or equal to that of  $R^2$ . Unlike  $R^2$ , the adjusted  $R^2$  increases only when the increase in  $R^2$  (due to the inclusion of a new explanatory variable) is more than one would expect to see by chance. If a set of explanatory variables with a predetermined hierarchy of importance are introduced into a regression one at a time, with the adjusted  $R^2$  computed each time, the level at which adjusted  $R^2$  reaches a maximum, and decreases afterward, would be the regression with the ideal combination of having the best fit without excess/unnecessary terms. **Economic Criteria**

We shall test for auto-correlation using the Durbin-Watson test for multi co-linearity, normality and Heteroscedasticity.

**Durbin-Watson**

Test is determined by the theory of econometrics. It is used to test for the percentage of first auto-correlation. The level of significance used is 5 percent.

Durbin Watson test (D.W) is the statistical technique used to carry out auto correlation of result gotten from regression. This aim at testing whether the error term in one-time period is correlated with the subsequent or proceeding period. It also indicates testing for the serial correlation.

One of the underlying assumptions of the ordinary least regression is that the succession values of the random variables are temporarily independent. In the context of the series analysis, this means that an error {Ut} is not correlated with one or more of previous errors {Ut-1}. The problem is usually dictated with Durbin Watson {DW} statistics.

The Durbin-Watson's test compares the empirical dL and du in d-w tables to their transforms {4-dLJ and {4-dU}}.

**Decision Rule:**

- If  $d^* < DL$ , then we reject the null hypothesis of no correlation and accept that there is positive autocorrelation of first order.
- If  $d^* > \{4-dL\}$ , we reject the null hypothesis and accept that there is negative autocorrelation of the first order.

**Sources of Data -**

The data that is used for this research work is secondary data. They are the time series data on the included variables. The data were sourced from the central bank of Nigeria (CBN) Statistical Bulletin 2019 edition.

**III. Results And Discussion**

In this chapter, the results of the ordinary least square (OLS) regression are presented. The analysis of the results involves subjecting the parameter estimates of the model to various theoretical (a priori) expectations, statistical first order test and econometric second order tests to determine their reliability or robustness. (See appendix 1 for details of data collected from 1981-2019). External Debt Service Payments EDSP

**Table 4.1: Regression Result**

Dependent Variable: RGDP

Method: Least Squares

Date: 07/08/21 Time: 04:07

Sample: 1981 2019

Included observations: 39

Variable	Coefficient	Std. Error	-StatisticProb.		
EDS		-5.128359	0.559549	9.165170	0.0000
EDSP		11.72086	2.841264	4.125227	0.0002
EXC		228.4047	18.30826	12.47550	0.0000
C		17237.15	1088.625	15.83387	0.0000
R-squared		0.958475	Mean dependent var		34690.93
Adjusted R-squared		0.954915	S.D. dependent var		20238.24
S.E. of regression		4297.208	Akaike info criterion		19.66623
Sum squared reside		6.46E+08	Schwarz criterion		19.83686
g likelihood		-379.4916	Hannan-Quinn criter.		19.72745
F-statistic		269.2871	Durbin- Watson stat		0.839075
Prob(F-statistic)		0.000000			

**Model Estimation**

$$RGDP = \alpha_0 + \alpha_1 EDS + \alpha_2 EDSP + \alpha_3 EXC$$

$$RGDP = 17237.15 - 5.128359EDS + 11.72086EDSP + 228.4047EXC$$

t.Stat -15.83387\*    9.165170\*                      4.125227\*                      12.47550\*  
 $R^2 = 0.958475$   
 $R^2 = 0.954915$   
 F-statistic    269.2871  
 Prob (F-statistic)    0.000000  
 Durbin- Watson stat = 0.839075

**Interpretation of Results**

From the estimated model above, the intercept being positive (17237.15) shows that there exist a direct and positive relationship between the dependent variable and the independent variables with the Nigerian economic growth, under the reviewed period.

The coefficient of EDS (External Debt Stock) being negatively signed (-5.128359) indicated that a unit increase in EDS is likely to lead to about -5.128359 decrease in GDP, which is in conformity with the research a priori expectation of this study. The negative relationship between external debt and economic growth might be due to the fact that even though debt provided the much needed fund, it might not have been used on productive ventures where the returns should be more, than the interest payable. This may be due to poor policy formulation, misappropriation, embezzlement and other governmental corrupt practices.

From the results of the study, EDSP (External Debt service payment) has a positive relationship with the economic growth in Nigeria, the coefficient of EDSP is 11.72086 which implies that a unit change in EDSP will lead a unit change in GDP by 11.72086. This findings negate the a priori expectation of this study.

EXR has a positive relationship with RGDP(228.4047),thus conforming to the a priori expectation and it is significant on GDP. The implication of EXR connotes that the rate at which Naira is being converted to a key currency (USDollar) allowed the nation to service its debt properly without deteriorating economic growth, hence, Nigeria did not suffer heavy debt burden because the Naira competed well in global market.

**Test of Goodness of Fit ( $R^2$ )**

Measure the goodness of fit of our regression line, it *also* measure the explained and unexplained variation. It shows the percentage of the total variation in the dependent variable that can be explained by the independent variables.

The result shows the value of our  $R^2$  as 0.948663 (95%). This implies (hat all the independent variables (External Debt Stock, Debt service payment and Exchange rate) jointly contributed to the dependent variable. This means 95% (percent) of the total variation in economic growth in Nigeria is being explained by the independent variables. While the remaining 5% is explained by other variables which were not captured by the model are included in the disturbance variable.

**T-Test Statistics**

T-test is a confirmatory test of significance and decision is always based on its outcome using 2- tail test at 0.05 level of significance or 95% confidence level. A parameter estimate is significant if its calculated value is greater than its tabular value.

The following table shows the significance of the estimates.

**Table 4.2: T. Test Statistics test**

Variable	Calculated t*	P. Value	Decision
EDS	9.165170	0.0000	Significant
EDSP	4.125227	0.0002	Significant
EXC	12.47550	0.0000	Significant
C	15.83387	0.0000	Significant

**Author's Computation, 2021. The F-statistics test**

The test is conducted to determine if the independent variables in the model are simultaneously significant or not.

$K-l=4-1 = 3n-k = 39-4 = 35$

**Table 4.3: F-statistics test**

f-calculated	T-tabulated	Decision rule
269,2871	2,55	Reject the Null Hypothesis

From the table, since  $t_{cal} > t_{tab}$  i.e.  $269.2871 > 2.92$ , we therefore reject the null hypothesis ( $H_0$ ) and accept the alternative hypothesis ( $H_1$ ) and conclude that all coefficients are not simultaneously equal to zero, i.e. the independent variables are simultaneously significant in determining the efficiency of the dependent variable (RGDP).

From the regression result, the value of F-statistics was 269.2871 and since the value exceeded the table value of 2.92 at 5% level of significance, we rejected the null hypothesis and the alternative hypothesis was accepted that  $\beta_1$  and  $\beta_2$  were not both zero and that R-square was significantly different from zero. The larger the F-statistics, the stronger the explanatory variable on independent variable.

D.W. = 0.839075, therefore, there is no autocorrelation problem in the model.

**Serial Correlation LM Test:**

**Table 4.4 Serial Correlation LM Test:**

Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	19.16173	Prob. F(2,33)	0.0000
Obs*R-squared	20.95545	Prob. Chi-Square(2)	0.0000

**Null Hypothesis:** No Serial correlation in the residuals (u)

**Alternative Hypothesis:** There is serial Correlation in the residuals. Since the p-value (0.0000) of Obs\*R-squared is less than 5% ( $p < 0.05$ ) and F-statistic is 19.16173, the null hypothesis is rejected confirming the absence of serial autocorrelation.

**Table 4.5: Heteroskedasticity Test**

Heteroskedasticity Test: Breusch-Pagan-Godfrey			
F statistic	4.193675	Prob. F(3,35)	0.0123
Obs*R-squared	10.31209	Prob. Chi-Square(3)	0.0161
Scaled explained SS	11.52254	Prob. Chi-Square(3)	0.0092

Since the f-statistic is 4.193675 which is significant, this confirms the presence of heteroscedasticity in the model. This confirms the violation of the assumption of homoscedasticity in the model. Hence, this confirms some problems with respect to conditional heteroscedasticity and regression specification. Hence the residuals are not expected to be distributed as white noise and the coefficients not valid for policy discussion in Nigeria.

**Residual Normality Test**

**Null Hypothesis:** residuals (u) are normally distributed **Alternative:** Not normally distributed

Jarque-Berra statistics is 1.515 and the corresponding p value is 0.468 (46.8%). Since the p value is greater than 5 percent we then accept null hypothesis that the population residual (u) is normally distributed which fulfils the assumption of a good regress line.

**IV. Summary**

The study examined impact of external debt on economic growth in Nigeria, The study employed secondary data, the data spanned from 1981 through 2019. Econometrics statistical tools were employed to explore the relationship between these variables. The study examines stochastic characteristics of each time series by correlation LM test, Heteroskedasticity Test. Then, the relationship between growth rate of real GDI\* and external debt was dynamically examined using ordinary least square method. The ordinary least square techniques was used for the purpose of estimation.

The impact of external debt on economic growth in Nigeria was negative and statistically in explaining economic growth in Nigeria, high external debt in Nigeria relative to RGDP leads to a reduction in economic growth rate. This confirms Solow's argument that when capital increases relative to labour, this increases growth since people become more productive when working with more of capital. This also confirms Keynesian growth theory that economic growth is determined by investment and savings. A country with high external debts may experience a leakage in the circular flow of income through paying of the debts and interest rates. This may lower investments and affect the economic growth negatively.

The finding revealed that External Debt Stock has a negatively impact of economic growth in Nigeria and statistically significant as well.

The study revealed that External Debt service payment has a positive relationship with the economic growth in Nigeria and statistically significant as well.

Exchange rate has a positive relationship with RGDP in Nigeria conforming with the a priori expectation and it is statistically significant

Measure the goodness of fit of our regression line, it also measure the explained and unexplained variation. It shows the percentage of the total variation in the dependent variable that can be explained by the independent variables.

## V. Conclusion

External debts 'are necessary to meet shortfall internal resources, and stimulate the economy. However, it must be properly utilized to avoid serious consequences. Borrowing is not the most important issue but the use to which the fund is deployed. This should be the most important thing agitating the mind of any good accountant and Economist whenever external debt is contemplated. It should be approached with caution, ensuring optimal utilization and higher return than the interest (cost of fund). To sum, external debt stock has negative impacts on the economy while debt service payment and exchange rate has positive impact on the same economy.

## VI. Recommendations

In consideration of the outcome of our data analysis, we can make several policy recommendations

- Debt Management Office (DMO) should set mechanisms in motion to ensure that loans are utilized for the purpose for which they were acquired. This could be achieved through proper monitoring of the use to which the funds are put.
- DMO should set maximum limit of loans state and federal governments could be allowed to acquire based on certain stipulated criteria.
- Government should aggressively pursue the process of diversification of the economy. This will result in buoyant and robust economy which will reduce the need for external debt to the barest minimum.
- Anticorruption agencies like Economic and Financial Crimes Commission (EFCC), Independent Corrupt Practices and other Related Offences Commission (ICPC) and Code of Conduct Bureau should be made independent and the laws establishing them reviewed by government to make them more functional and efficient. This will reduce the incidences of misappropriation and embezzlement of funds from external debt.
- Development activities in Nigeria should be financed through increased export earnings spearheaded by export-led-growth strategy as well as investment in human capital as these would be the best alternative to external debt.

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