EFFECT OF EXTERNAL BORROWING ON ECONOMIC GROWTH IN NIGERIA.

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ABSTRACT

The research was carried out to determine the effect of external borrowing on the economic growth of Nigeria. Auto-Regressive Distributed Lag (ARDL) model was used for the estimation and ARDL bound test was carried out for co-integration. Augmented Dickey Fuller (ADF) Unit Root Test and Philips-Peron (PP) test were used to test for stationarity. The study showed that economic growth is positively influenced by external debt stock both in the long run and the short run. However, the study did not find a significant relationship between debt service payment and economic growth. Control variables like inflation was revealed to have a significant negative influence on economic growth in the short-run, while exchange rate and capital formation have significant negative influence on economic growth both in the short run and long run. Based on the positive relationship between external debt stock and economic growth, it is recommended that loans received from external sources should be channelled to productive investments in order to enhance economic growth. Based on the negative relationship between exchange rate and economic growth. It is recommended that effective fiscal and monetary policies that will stabilize exchange rates should be adopted. Similarly, based on the negative relationship between inflation rate and economic growth, it is also recommended that policies that can stabilize the inflation rate at a level that will enhance economic growth should be implemented.

INTRODUCTION

Africa and specifically Nigeria is bound to a financial constraint that has made it to complement domestic resources with foreign borrowing to enable promote sustainable growth in the economy. Egbetunde (2012), however, opines that external borrowing appears to be better than domestic borrowing because the

interest charges by external sources; the likes of World Bank Group and (IMF) is about fifty percent less than the interest rates charges in the domestic market. Soludo (2003) also argued by adding that countries go for loans for two main reasons, firstly is macroeconomics reasons; which is to cater for the increasing investment and consumption level, or to fund the balance of payment deficit which is transitory. And secondly, to restrain from budget constraint in order to reduce poverty as well as boost economic growth and development.

Another reason for borrowing as opined by Obudah and Tombofa (2014) is to enable a country with frequent budget deficits finance the negative balances and also enables a country to finance its high government expenditures in order to create more sources of revenue and increase output which results to boost in economic growth. Osinubi and Olaleru (2006) posited that the reliance of developing countries on borrowing to fund for budget deficit has brought about external debt. According to Adepoju et. al., (2007), in an economy, external borrowing is considered to be one of the main sources of government revenue and capital expenditure. Countries usually resort to external borrowing to finance their budget deficits and capital projects which can result to a remarkable sustainable growth and reinforcing development. It is suggested by Hameed et al. (2008) that foreign loan should be an option to foster economic growth when the revenues from domestic sources seem inadequate. With a rise in Gross Domestic Product (GDP) through total factor productivity, a nation can record improved living standards that alleviate poverty.

Although the need for external borrowing as a catalyst for economic growth is favourably argued in some parlance, excessive public debt is seen to be a liability to the country. Soludo (2003) opines that debt stock grows to a particular threshold, payment of these loans becomes exasperating and exerts unbearable burden on countries. At this state, countries are found gasping for survival as they wallow on the unfavorable wing of external borrowing where the amount payable to service the debt is more than the available resources that should have been channeled for productive investments, as the investments in such countries experience crowding out. Bakare (2011) added by saying that the debt burden of a country does not significantly make it record a dilatory growth, rather, it is the inability of a nation to use these borrowed funds to promote growth in the economy and to ensure an effective process of paying

back this borrowed funds that makes it difficult for the benefits from borrowed capital resources to be derived.

External loans to a large extent are an economic challenge facing developing countries, and this is as a result of the persistent deficit in budget. Audu (2004) stated that the western world recognizes that the incessant external borrowing in most low income countries is the major reason that growth and stability is inhibited in those countries. A developing country like Nigeria is always going for huge sums of external loans which have resulted to the humungous debt accumulation with high interest charges. As pointed out by Gohar and Butt (2012), the accumulation of debt service payment has created many problems for the low income nations because the amount needed to service the debt usually exceeds the amount of loans acquired which is unhealthy for the growth process in those nations. Audu (2004) stated that the Nigerian economy is inhibited in growth and development because of the debt service burden due to an inability to cater for its debt service payments. Udeh (2013) notes that the debt service burden influenced the idea of developing several initiatives that can aid in relieving the indebtedness of the highly indebted countries (HIPCs) as the debt burden have hindered the growth prospect of these economies.

The rapid increases in external debts in recent years gives birth to questions on whether or not the deteriorating state of the economy of Nigeria can be attributed to inadequate funding; and if increased external borrowings will accelerates the pace of growth

LITERATURE REVIEW

Theoretical Review

Many theories have attempted to explain the concept of economic growth. In this chapter, some debt theories and how they influence growth will be reviewed.

The theory of dual gap

The ideology of the concept suggests the need for external source of funds to support the insufficient domestic savings with the aim of investment so as to earn a sustainable and economic well-being of the country. Chenery and Strout (1996) point out that the level of investment in an economy largely depends on how much the economy has in savings and economic growth can be achieved if

investment is made. Ajayi (2000) points out that external finance can be sort for when the rate of returns on borrowed funds is estimated to be higher than the cost that could be incurred in servicing the foreign loans, this he considered as the guiding principle for external borrowing.

The theory of the debt overhang

The concept of the theory tries to explain a situation where a country is so heavily indebted that it can no longer take additional debt to fund any project. Krugman (1988) contributes his own definition of debt overhang to be a point in time when the potentials of a country to repay its outstanding debt fall lower than the amount the country owes.

The Debt laffer curve

This function expresses the connection or the linkage that exist between the proportion of debt refund and the total debt stock. The laffer curve explains the idea of limit to borrowing. Ademola et al. (2018) state that once the threshold point of borrowing is exceeded, the debt eventually turns to a burden with a likelihood of having the price of refund consuming the stock of wealth available that could otherwise be used for investments.

The theory of the Crowding-out Effect

This theory explains how the generated revenue of a country, sourced from foreign exchange earnings is committed to servicing the debt of the nation, rather than accumulating capital. Tayo (1993) asserted that debt repayments exerts a more devastating effects on economic growth and development, as resources that would rather be channeled to government expenditure on capital investment and infrastructural provision of the country are used for debt servicing.

The classical theory of economic growth

In the year 1776, Adam Smith presented an article he titled “The Wealth of Nations” in an era that can said to be the introduction of classical economics. This theory emphasizes that gold was not the basis for the wealth of nations, rather, trade was the basis. Smith pointed out that the effectiveness of factor

inputs of; land, labor and capital are responsible for the increase in the wealth of nations.

Innovative growth theory of Schumpeter

This theory was propounded by a certain Joseph Alois Schumpeter (1911). He pointed out in his theory that entrepreneurial innovation is the main push behind the development of an economy. The concept further elaborates how the growth of the economy is stimulated by the innovative idea of new ways to combine inputs, adapt the changes in technology in production, manufacturing of new goods and expanding into new markets (Lavrov and Kapoguzov, 2006).

The theory of Harrod-Domar growth model

R.F. Harrod (1939) and E. Domar (1946) broached this theory. The model suggests that the celerity of growth in an economy is influenced by the amount of their savings, capital-output ratio and capital depreciation in that country**.** The level of savings suggests that more savings will bring about more investment in capital. Capital depreciation means the wearing out of old capital (equipment).

Empirical Review

Sulaiman and Azeez (2012) explored to find out the relationship between economic growth, external debt and investments from1980-2008 in Nigeria' the debt-cum growth model employed in their studies. The outcome of the exploration revealed external debt reserve and private investments inversely affects totals (GDP). The result also revealed that both interest and exchange rates has a direct relationship or impacts on economic growth. They recommend that appropriate measure that aims at optimal use of funds that are borrowed from external sources should be taken.

Udeh et al. (2016) explored the link between foreign debt stock and economic wellbeing of Nigeria economy employing a time series data from 1980 to 2013. They used the OLS estimation technique for the analyses of their variables, Unit root was tested using ADF. The outcome of their work revealed that foreign debt stock and economic growth are positively related in short run but inversely related in the long run. They propose that effective procedures that

will checkmate any attempt of the government to misuse or misappropriate loans should be adopted.

Mbah et al. (2016) explored the influence that external debt has on economic growth in Nigeria from 1970 to 2013. They employed the ARDL technique for their analyses and the variables under consideration were related in the long run. The outcome revealed that economic growth and external debt stock were also negatively related. They propose that any further loans secured should be channeled towards projects and infrastructural development of the nation.

In a similar work, some theories and concepts were modeled by Olasode and Babatunde (2016) to fine out the link that exist between economic development and total foreign debt in Nigeria. ARDL model was used to analyze data from 1983-2012. The outcome revealed external debt to have a direct relationship with economic growth, while debt service payment of the present year exhibited an inverse relationship with economic growth. They recommended that government should limit the intake of foreign loans but rather enhance local output to facilitate development.

Ijirshar et al. (2016) seek to establish the link between foreign borrowings and growth of Nigeria economy. They extracted data for the periods from 1981 to 2014 for analysis. Descriptive and econometric tools were employed to empirically sift the data generated. The findings saw that economic growth and external borrowing were directly related only in the long run. However, in both the short run and long run periods, debt repayment and economic growth were negatively related. They recommended that the pile of funds that are secured through external borrowing can positively affects economic growth if and only if those funds are committed to productive purposes.

Ayadi and Ayadi (2008) seek to compare Nigeria and South Africa on how impactful foreign borrowing is on the economic wellbeing and growth of these two regions. They reviewed the data covering the period from 1980 to 2007, (and the Generalized Least Square (GLS) as well as the ordinary least square (OLS) techniques were adopted for their data to estimation process. The outcome suggested that in both countries (Nigeria and South Africa) were negatively affected by both foreign borrowing and debt repayment because it delays infrastructural development in the two countries.

Onakoya and Ogunade (2017) researched on the connection linking foreign borrowing and the Nigeria economic growth, reviewing a time period from

1981 to 2014. ARDL approach was used to carry out the data analysis. Their findings suggested that foreign borrowing had a significant inverse relationship with economic wellbeing and growth and debt service payment was revealed to be insignificantly responsive in influencing economic growth. They recommend that government should have a rethink on the decision of borrowing since the nation is sitting on abundant resources.

An empirically study was conducted by Zaman and Arslan (2014) examine the role of foreign borrowings towards economic growth and development in Pakistan from the period of 1972 to 2010.. Their results suggested that gross domestic product (GDP) is significantly affected by both foreign debt stock and gross capital formation on the economy of Pakistan.

Bamidele and Joseph (2013) researched on the causal influence of foreign debt on the economic growth and development of Nigeria economy. the pair wise granger causality and the OLS data estimation techniques was employed in the research. The outcome suggested that growth in Nigeria economy is greatly negatively affected by external borrowing.

Obedemi (2017) seek to explore the link connecting the growth of Nigeria economy and external borrowing. reviewing the data of a time period from 1981 through 2014. He employed the ARDL approach. The outcome suggested that external borrowing exhibits an inverse impact on economic growth and inflation as the control variable is insignificantly responsive in influencing growth in Nigeria economy.

Ajayi and Oke (2012) seeked to establish the link between foreign borrowings and growth and development in Nigeria economy. The outcome of the OLS estimation suggested that foreign debt exhibits a direct link with national income even though neither ADF nor PP test were put into execution on the variables of the study. The authors pointed out that the outcome of study did not conform with their expected results of the research.

The link between external debt and economic growth and development in countries around the globe poses a myriad of controversial discussion in pragmatism than theoretical in the Nigerian context, given the variations in explanatory variables, methodologies and results and it is therefore contingent on further pragmatic exploration. At such, this study is carried out to investigate and to affirm any of the above findings given the policies of the current administrations and increases in external debt in recent years.

Literature Gap

Most studies failed to take cognizance of the investment made into the economy through capital formation. Sergius et al. (2016) did not capture capital formation in their research on "External debt and Economic Growth: The Nigeria Experience."

Similarly, Ademola et al. (2018) researched on "External debt and Economic growth in Nigeria: An empirical investigation" without taking into cognizance the investment made into the economy through capital formation.

It is intended that this study will establish the relationship between capital formation, which is the investment ground upon which external debt can trigger economic growth, and external borrowing.

METHODOLOGY

The Type And Source Of Data

Secondary data was sourced for the study. The data reviewed covered a time period from 1980 – 2018. Data on Economic growth, External Debt Stock, Debt Service Payment, Inflation, Exchange rate, Foreign Direct Investment, Capital Consumption Expenditure and total Exports were all extracted from the central bank of Nigeria website and the World Development Indicators (WDI, 2018).

Model Specification

Following the empirical work of Sergius et al. (2016) and Ademola et al. (2018), this study adopted the model specified in equation (3.1), which is the functional form

$$Y_t = f(EDS_t, DSP_t, INF_t, EXR_t, FDI_t, CAP_t, CEXP_t, EXPT_t) \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (3.1)$$

where Y is the dependent variable representing economic growth and the independent variables; EDS represents external debt stock, DSP represents debt service payment, INF represents inflation, EXR represents exchange rate, FDI represents foreign direct investment, CAP represents Gross fixed capital formation. The estimable form of equation (3.1) is specified in equation (3.2):

$$Y_t = \alpha_0 + \alpha_1 \ln EDS_t + \alpha_2 \ln DSP_t + \alpha_3 \ln INF_t + \alpha_4 \ln EXR_t + \alpha_5 FDI_t + \alpha_6 \ln CAPt + \alpha_7 \ln CEXP_t + \alpha_8 \ln EXPT + \mu_t \quad \ldots\ldots (3.2)$$

where α_1, α_2, α_3, α_4, α_5, α_6, α_7 and α_8 constitute the coefficients of the respective explanatory variables, ln represents natural logarithm and μ_t is the error term.
Ugwuegbe et al. (2016) postulate that the log form of a multiple regression is believed to help improve on the linearity of the model and also to avoid heteroskedasticity.

Estimation techniques

For the sake of consistency and reliability of the results that will be derived from the estimated parameters, it becomes necessary for preliminary test to be carried out. To ensure that the variables are stationary, unit root test will be carried out. To determine the existence of a long run relationship among variables, the co-integration test will be carried out.

Stationarity test

It has become necessary for time series data to go through the stationarity test because of the rising and falling trend of the data which gives a high likelihood of non-stationarity. The study made use of the Augmented Dickey-Fuller and the Philip-Peron tests.

The Augmented Dickey- Fuller (ADF) Test

The Augmented Dickey-Fuller test is usually carried out to test for presence of a unit root in a sample of a time series. Elliot et al. (1996) stated that time series data can be disturbed by some stochastic processes like random walk which is problematic to inferential statistic result. The ADF test is guided by a null hypothesis that will indicate whether or not a unit root is present in the series. ADF test holds the following general formular:

$$\Delta Y_t = \beta_1 + \beta_2 t + \beta_3 Y_{t-1} + \sum_{i=1}^{p} \alpha_i \Delta Y_{t-1} + \mu_t \quad \text{..... (3.3)}$$

where Y_t is the time series variable; β_1 and β_2 are the estimated parameters; Δ represents the difference operator.
From equation (3.3), the null hypothesis is tested for existence of unit root. If null hypothesis is rejected, it means the series is stationary.

The Philip-Perron (PP) Test

The PP test can be likened to the ADF test but in an advanced level because it has been made more robust to test for existence of unit root, Philips and Perron (1988). The PP test has the following equation:

$\Delta Y_{t-1} = \beta_0 + \alpha Y_{t-1} + \mu_t$.....(3.4)

From equation (3.4), the null hypothesis is tested for the existence of unit root. If null hypothesis is rejected, it means the series is stationary.

Cointegration Test

The Autoregressive Distributed Lag (ARDL) bounds test for co-integration is incorporated in the model to test for long-run equilibrium relationship among the variables. It becomes necessary to take this estimation procedure considering the fact that time series data are stationary either at levels I(0) or at first difference I(1) or both at I(0) and I(1). The equation of cointegration test is presented as follows:

$\Delta y_t = \beta_0 + \sum_{i=1}^{p} \alpha_i \Delta X_{t-i} + \sum_{j=1}^{q} \rho_j \Delta Y_{t-j} + \mu_t$.....(3.5)

From equation (3.5), the test for the absence of cointegration among variables is carried out on the null hypothesis. If the null hypothesis is rejected, it means that the variables have a long run relationship.

ARDL model

The study adopted the Autoregressive Distributed Lag (ARDL) technique of estimation to estimate the effect of external debt, debt service payment, inflation, exchange rate, foreign direct investment (FDI) consumption expenditure, capital formation, and export on the economic growth of Nigeria. If the variables are tested to be stationary at levels I(0) or first difference I(1) and cointegration exist among variables, the ARDL can be used. Equation (3.6) presents the ARDL model of this study:

$$\Delta Y_t = \beta_0 + Y_{t-1} + \alpha_1 \ln EDS_{t-1} + \alpha_2 \ln DSP_{t-1} + \alpha_3 \ln INF_{t-1} + \alpha_4 \ln EXR_{t-1} + \alpha_5 FDI_{t-1} + \alpha_6 \ln CAP_{t-1} + \alpha_7 \ln CEXP_{t-1} + \alpha_8 \ln EXPT_{t-1} + \sum_{i=1}^{p} \beta_i \Delta Y_{t-i} + \sum_{i=1}^{p} \rho_i \Delta \ln EDS_{t-i} + \sum_{i=1}^{p} \alpha \Delta \ln DSP_{t-i} + \sum_{i=1}^{p} \theta_i \Delta \ln INF_{t-i} + \sum_{i=1}^{p} \Omega_i \Delta \ln EXR_{t-i} + \sum_{i=1}^{p} \Psi_i \Delta FDI_{t-i} +$$

$$\sum_{i=1}^{p} \partial_i \quad \Delta \ln CAP_{t-i} + \sum_{i=1}^{p} ß_i \Delta \ln CEXP_{t-i} + \sum_{i=1}^{p} \sigma_i \Delta \ln EXPT_{t-i} + \mu_t \quad \text{.....(3.6)}$$

Diagnostic Test

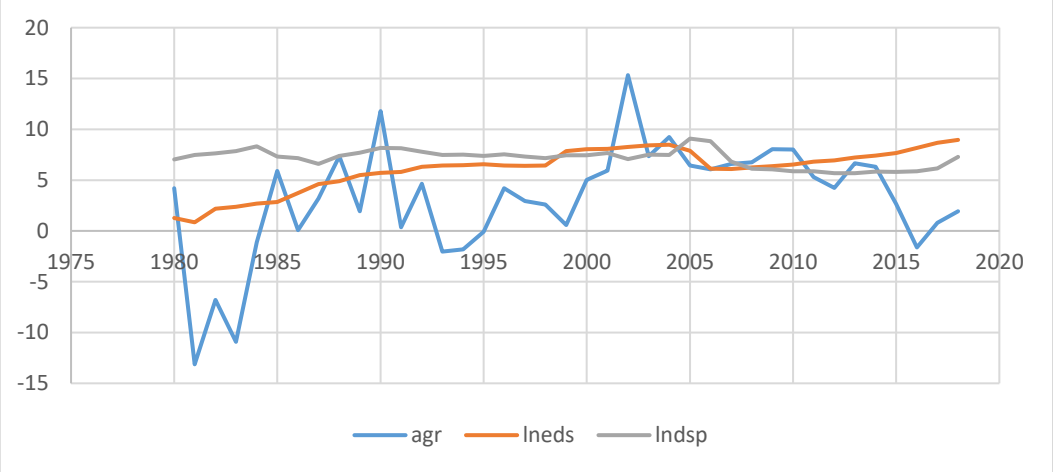
Diagnostic tests were carried out for normality using Jarque-Bera, serial correlation using Breush-Godfrey LM test, heteroschedasticity using Breusch-Pagan-Godfrey, functional form using Ramsey Reset test, and stability using the cumulative sum (CUSUM) and cumulative sum of square (CUSUMSQ) plots.

DATA ANALYSIS AND INTEPRETATION

Trend Analysis of Economic Growth, External Debt Stock and Debt Service Payment

Figure 4.1 presents trend of economic growth, external debt stock and debt service payment in Nigeria from 1980-2018.

Figure 4.1 Trends of economic growth, External Debt Stock and Debt Service Payment



Source: Author's construction

From Figure 4.1, it can be observed that the economy recorded a negative growth from 1981(-13.13%) to 1984 (-1.12%), 1993 (-2.03%) to 1995 (-0.07%) and in 2016 (-1.62%) with the lowest figure recorded in 1981 (-13.13%). The sharp decline in economic growth in 1981 can be linked to the decline in oil prices after the era of the oil boom (Ademola et al. 2018). The decline in economic growth in 2016 was steered by lost of confidence in government, absence of new investment, unnecessary delays by government to spend on

investment, depreciation of the value of naira, vandalism of pipelines, high interest rate and trade restrictions (Benjamin, 2017).

A positive growth was recorded in 1985 (5.91%). This growth can be attributed to decisive fiscal, monetary and exchange control measures, as well as the incomes policy that were put in place to resuscitate the deteriorating economy . This led to the adoption of the Structural Adjustment Program (SAP) (Edo and Ikelegbe, 2014). It can be observed that economic growth recorded its highest peak in 2004 (9.25%). This can be attributed to the rise in oil prices (Ezeabisili, 2011).

External debt stock on the other hand experienced a persistent rise from 1981 to 1999. This was during a military era when high rate of corruption especially money laundering was recorded. External continue to rise from 2000 to 2004. However, a decline is recorded in 2005, this can be attributed to the debt relief that was earned during the Olusegun Obasanjo democratic era.

Debt service payment has been fairly stable from 1980 to 2009. However, a decline was recorded in 2010. This can be attributed to the recession that hit the economy and Nigeria was struggling to come out of it.

Unit root test result

Table 4.1 reports the result of Unit root test carried out using the Augmented Dickey Fuller (ADF) and Philips-Peron (PP).

Table 4.1: Unit root test results

	ADF Test				P-P Test			
	Level		**First Difference**		**Level**		**First Difference**	
Variable	**No Trend**	**Trend**	**No Trend**	**Trend**	**No Trend**	**Trend**	**No Trend**	**Trend**
AGR	-3.4229**	-3.0072	-11.4682***	-11.5815***	-3.5564**	-4.1804**	-12.3185***	-21.2567***
LNEDS	-2.7975	-2.7100	-4.8795***	-5.1004***	-1.9930	-1.8666	-4.9218***	-5.1004***
LNDSP	-2.0708	-3.0181	-4.9599***	-4.8432***	-2.1315	-2.5898	-5.1147***	-4.7918***
LNINF	-3.4551**	-3.9510**	-6.4010***	-6.1435***	-3.3382**	-3.3481	-13.8639***	-13.4541***
EXR	1.0285	-1.4650	-5.4386***	-5.7320***	1.4121	-1.6022	-5.4249***	-5.7520***
FDI	-3.6185***	-3.4395	-8.5942***	-8.6521***	-3.5618**	-3.3596	-12.0030***	-23.0442***
LNCAP	-1.0308	-2.8853	-6.3478***	-6.3600***	-1.0262	-2.9889	-6.3478***	-6.3690***

LNCEXP	-1.0874	-1.3662	-6.4638***	-6.4096***	-1.0931	-1.3970	-6.4488***	-6.4017***
LNEXPT	-2.1312	-2.5959	-7.5704***	-7.4588***	-2.4099	-3.0690	-7.5704***	-7.5800***

Note: *** and ** represent the rejection of the null hypothesis of unit root at 1 percent and 5 percent significance levels respectively.

Source: Author's Estimation

From Table 4.1, it is observed that the variables are stationary either at levels or first difference. Both tests reveal that all the variables are stationary at first difference.

Co-integration test

Table 4.2 shows the result of the ARDL bounds test for co-integration.

Table 4.2: Bounds test results for long-run relationship

Test Statistic	Lower bound critical value	Upper bound critical value
3.4274**	2.22	3.39

Note: ** denotes rejection of the null hypothesis of no co-integration at 5 percent significance level.

Source: Author's Estimation

From Table 4.2, the value of the probability suggests that we reject the null hypothesis of "no long-run relationship". We can therefore say that a long-run relationship exists between economic growth and the other variables in the study.

Long-run relationship Results

Following the evidence of the existence of a long-run relationship, the parameters of the variables are estimated using ARDL (1, 0, 0, 1, 0, 0, 0, 0, 0). The results are reported in Table 4.3

Table 4.3: Estimated long-run results

Variable	Coefficient	Std. Error	T-statistic	*P*-value
LNEDS	2.1576	0.7342	2.9389	0.0067
LNDSP	1.0529	1.0428	1.0097	0.3216

LNINF	-0.3459	1.6524	-0.2094	0.8357
EXR	-0.0072	0.0024	-3.0000	0.0057
FDI	-0.1259	0.0950	-1.3241	0.1966
LNCAP	-1.4590	0.3702	-3.9406	0.0005
LNCEXP	-0.1585	0.1303	-1.2160	0.2345
LNEXPT	0.2767	0.2499	1.1076	0.2778
Constant	41.1413	14.1174	2.9142	0.0071

Source: Author's Estimation

According to the result in Table 4.3, external debt stock exerts a positive influence on economic growth in Nigeria in the long run. It indicates that, holding all other variables constant, 1 percent increase in external debt stock in the long run will increase economic growth by 2.16 percent at a significance level of 1 percent. This result conforms to the a priori expectation. This also agrees with the findings of Ajayi and Oke (2012) in Nigeria.

The study further confirmed that debt service payment exerts a positive but insignificant influence on the economic growth of. This conforms to the study of Onakoya and Ogunade (2017) where debt service payment is reported to exert a positive influence on economic growth.

The exchange rate is revealed to exert a negative influence on economic growth in the long-run and this contradicts the a priori expectation of a positive influence. It shows that if exchange rate increases by 1 percent, it will lead to a decline in the rate of economic growth by 0.0072 percent at a significance level of 1 percent. However, if the local currency value appreciation is well managed, it can lead to economic growth. This agrees with the study of Wasiu et al. (2019).

In the long-run, capital formation exerts a negative influence on economic growth as revealed by the result above. This contradicts the a priori expectation. It is revealed by the result that 1 percent increase in capital formation will lead to a decline in the rate of economic growth by 1.46 percent at 1 percent level of significance. Inadequate savings in a country will indeed bring about a negative impact of capital formation on economic growth. This agrees with the findings of Sergius et al. (2016).

The study did not find a significant relationship between inflation and economic growth, between foreign direct investment and economic growth, between

consumption expenditure and economic growth, and between export and economic growth. This means considering the study period, these variables did not exert any significant influence on economic growth of Nigeria.

The short-run Result

The ARDL estimated short-run results are reported in Table 4.4.

Table 4.4: Estimated short run results

Variable	Coefficient	Std. Error	T-statistic	*P*-value
ΔLNEDS	2.0152	0.6268	3.2152	0.0034
ΔLNDSP	0.9834	0.9933	0.9901	0.3309
ΔLNINF	-2.4008	1.1414	-2.1034	0.0449
ΔEXR	-0.0067	0.0020	-3.3104	0.0027
ΔFDI	-0.1175	0.0826	-1.4230	0.1662
ΔLNCAP	-1.3627	0.3632	-3.7516	0.0009
ΔLNCEXP	-0.1480	0.1255	-1.1796	0.2485
ΔLNEXPT	0.2585	0.2463	1.0495	0.3033
CointEq (-1)	-0.9340	0.1481	-6.3045	0.0000
R^2	0.7304			
Adjusted R^2	0.6305			
DW-statistic	1.5548			
F-Statistic	7.3131			
Prob. (F-statistic)	0.0000			

Source: Author's Estimation

From Table 4.4, CointEq (-1) is an error correction term that measures how fast the endogenous variable reacts to changes in the exogenous variables before taking the path to its long run equilibrium level. The negative and significant sign implies that the adjustment process of the model to return to equilibrium is quite effective. The result indicates a value of -0.93 which means that within a year, equilibrium can be restored at an adjustment speed of 93 percent. The short-run results reveal to be similar to that of the long-run, except for the estimate of inflation that is reported to be significant in the short-run.

The estimated short-run result in Table 4.4 revealed external debt stock to exert a positive influence on economic growth in Nigeria in the short-run. It indicates that, holding all other variables constant, an increase in external debt stock by 1 percent in the short run will lead to an increase in the rate of economic growth by 2.02 percent at a 1 percent level of significance.

The study revealed external debt service payment to exert a positive but insignificant influence on Nigeria's economic growth in the short-run. According to the result, 1 percent increase in debt service payment will lead to an increase in the rate of growth of the economy by 0.98 percent. The positive but insignificant relationship confirms the long-run relationship in the model. It is revealed by the result that inflation rate exerts a negative influence on economic growth in the short run. It indicated that 1 percent increase in inflation will lead to a decline in the rate of economic growth by 2.4 percent at 1 percent level of significance.

The exchange rate is reported to exert a negative influence on economic growth in the short-run. It is revealed by the result that an increase in the exchange rate by 1 percent will lead to a decline in the rate of economic growth by 0.0067 percent at a significance level of 1 percent. Capital formation is estimated to exert a negative influence on economic growth in the short run. It is revealed by the result that 1 percent increase in capital formation will lead to a decline in the rate of economic growth by 1.36 percent at a significance level of 1 percent.

Similar to the long-run results, the study did not find a significant relationship between foreign direct investment and economic growth, between consumption expenditure and economic growth, and between export and economic growth.

Diagnostic test results

The diagnostic test results are reported in Table 4.5

Table 4.5: Diagnostic test results

Diagnostic test	Test statistic	*P*-value
Normality	3.5749	0.1674
Serial correlation	1.5154	0.2392
Heteroskedasticity	0.5117	0.8668
Functional form	1.597	0.1286
CUSUM	Stable	
CUSUMSQ	Stable	

Source: Author's estimation

From Table 4.5, the result from the Jarque-Bera normality test shows a normal distribution in the series (see Appendix). The result of Cumulative Sum (CUSUM) and Cumulative Sume of Square (CUSUMSQ) indicate that the model is stable (see Appendix). Breusch-Godfrey Serial Correlation LM test result suggests the absence of serial correlation among the variables. The result for heteroscedasticity using the Breusch-Pagan-Godfrey test reveals that there is no heteroscedasticity in the error term.

The result of the correct functional form from Ramsey-reset stability test reveals the model to be correctly specified.

CONCLUSION AND RECOMMENDATION

The key objective of this study is to investigate the effect of external borrowing on the economic growth of Nigeria. Many related literatures were reviewed and related theories were assessed in order to ascertain that the estimates found from this study are empirically proven. In respect to the result, it can be concluded that external debt influences economic growth. It is also concluded that variables like: inflation, exchange rate and capital formation, which are control variables in the study, also influence the economic growth of Nigeria.

In respect to the results obtained and the discussions of the findings, the following recommendations are made:

The study has shown that external debt exerts a positive influence on economic growth. It is therefore recommended that the government of the country disciplines itself to expend funds secured through external borrowing on productive investment as that would help to enhance the economic growth.

In respect to the negative relationship between exchange rate and economic growth, it is therefore recommended that the Nigerian government adopts effective fiscal and monetary policies that will aid in stabilizing the exchange rate in order to enhance economic growth.

The study revealed inflation exerting a negative influence on economic growth. It is therefore recommended that policies that can stabilize the inflation rate at a level that economic growth could be enhanced should be implemented.

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