Empirical Approach to the Effect of External Debt on Economic Growth The Nigerian Case

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Abstract

This research work attempted an empirical approach investigating the effect of external debt on economic growth in Nigeria. Ordinary least squares regression method was employed using SPSS version 24. Three hypotheses were tested of which findings revealed that:external debt has no positive significant impact on economic growth in Nigeria; external debt has no positive significant influence on the value of Naira and external debt has no positive significant influence on inflation in Nigeria. Recommendations were made of which included that Government should adopt efficient budgetary control measures to ensure they maintain a balanced budget in order to minimize the rate of external borrowing.

Keywords: CPI; External Debt; %GDP; Exchange Rate

1.1   Introduction

A developing country facing scarcity of capital is expected to obtain external debt to complement domestic saving (Pattillo et al, 2002; Safdari and Mehrizi, 2011; Monogbe, 2016). The rate at which these capital-desperate borrow externally, depends on the interaction among foreign and domestic saving, investment, and economic growth. A country in need of capital to finance its expenditures should rather avoid acquiring external debt, but a country in need of capital for investment purposes should acquire external debt so long as the rate of return can finance the cost of borrowing, hence the borrowing country is using foreign savings to boost output.

External borrowing is something every developing and developed country cannot avoid. With fact, it will be proper to say that the more developed a country becomes, the more internationally indebted that country will be. Taking a look at countries of the world external debt profiles published by Wikipedia (2017). The most developed countries of the world topped the table starting with United States of America, their external debt profile doubled the external debt of the country following.

External borrowing for financing government investments is not supposed to hamper economic growth and development, but when a country borrows externally and uses the amount realised from external borrowing to finance expenditure instead of investments, growth and development will be hampered.

However, a country is expected to borrow externally within its capacity to service, if additional foreign borrowing increases the debt-service burden more than it increases the country's capacity to carry that burden, the situation can be reversed by expanding exports (which solely depends on increased production output). If it is not, and conditions do not change, more borrowing will be needed to make payments, and external debt will grow faster than the country's capacity to service it.

Over the years, Nigeria has contracted a number of debt obligations from external sources, some of which are:

- ✓ Paris Club of Creditors
- ✓ London Club of Creditors
- ✓ Multilateral Creditors
- ✓ Promissory Note Creditors, which are the refinanced uninsured trade arrears
- ✓ Bilateral and Private Sector Creditors.

Numerous factors contributed to the increased size of Nigeria's external debt which by the end of 2000, stood at US$29 billion. The major factors include the rapid growth of public expenditure, particularly that on capital projects, borrowing from the international community at non-concessional interest rates, decline in oil earnings from the late 1970s and the dependence on imports, which contributed to the emergence of trade arrears. By 1986, short and medium-term loans constituted about 85.0 percent of the total debt stock. The above developments resulted in the bunching of debt service, thus compounding the debt situation. Furthermore, upward movements in the interest rate affected the size of the external debt stock (CBN, 2001).

The debt burden on less developed countries can be traced to the early 1980's after the oil price increase of the 1970's (Ezike and Mojekwu, 2011) as quoted in ProjectFaculty (2015). It was the product of reactions by the international community to "oil price shocks". One of the legacies of African countries from the crisis has been an increasing debt burden, which constituted a major constraint to growth and development (Apeh and Okoh, 2014) as quoted ProjectFaculty (2015). Osuji and Ozurumba (2013) as quoted ProjectFaculty (2015) revealed that between the period of 1950-1960, Nigeria had a magnificent growth in its economy due to her huge investment in agriculture which was a major source of revenue for the country; this brought about reduction in both internal and external debt. However, in the eighties Nigeria's external debt rapidly escalated as a result of declining oil export earnings (Udoka and Ogege, 2012; Apeh and Okoh, 2014) as quoted ProjectFaculty (2015).

According to Muhammad and Fayyaz (2015) external debts affect the economy in both ways explaining that where efficient use of external debts can bring economic prosperity to a nation, their inefficient use can cause severe damages as well. External debt became a burden to African countries because contracted loans were not optimally deployed (Iya, et al. 2013), therefore returns on investments were not adequate to meet maturing obligations and also hindering economic growth (Erhieyovwe and Onovwoakpoma, 2013) as quoted ProjectFaculty (2015). African economies have not performed well, partly because of the increased outflow of resources to service debt obligations and partly because the necessary macro-economic adjustment has remained elusive for most of the countries in the continent.

External debt has been known to cause economic instability especially where it is used to finance expenditure. External debt is supposed to be obtained only for the sole purpose of financing productive projects that will boost exportation so as to ascend a good international position at the same time maintaining improved economic growth. Considering the number of years, since Nigeria had been independent and the substantial debt it had incurred, coupled with the existing institutions, one can claim that the entire spectrum of the economy has not been sufficiently active, especially when compared with the economy of similar or lesser aged developing countries. We will be considering the effect of external debt on economic growth, selecting gross domestic product, consumer price index and exchange rate as independent variables.

Objectives of the Study

The study will focus on the following objectives:

1. To investigate empirically the effect of external debt on economic growth in Nigeria.

2.   To explore the impact of the external debt on the value of Naira.
3.   To investigate the effect of external debt on inflation in Nigeria.

Research Hypotheses

1. H_0: External debt has no positive significant impact on economic growth in Nigeria
2. H_0: External debt has no positive significant influence on the value of Naira
3. H_0: External debt have no positive significant influence on inflation in Nigeria.

Empirical Review

Clements et al, (2003) examined the channels through which external debt affects growth in low-income countries. Their results suggest that the substantial reduction in the stock of external debt projected for highly indebted poor countries (HIPCs) would directly increase per capita income growth by about 1 percentage point per annum. They noted that reductions in external debt service could also provide an indirect boost to growth through their effects on public investment. They argued that If half of all debt-service relief were channeled for such purposes without increasing the budget deficit, then growth could accelerate in some HIPCs by an additional 0.5 percentage point per annum.

Borensztein (1990) found that debt overhang had an adverse effect on private investment in Phillipines. The effect was strongest when private debt rather than total debt was used as a measure of the debt overhang. Iyoha (1997) found similar results for SSA countries. He concluded that heavy debt burden acts to reduce investment through both the debt overhang and the 'crowding out' effect.

Elbadawi et al. (1996) also confirmed a debt overhang effect on economic growth using cross-section regression for 99 developing countries spanning SSA, Latin America, Asia and Middle East. They identified three direct channels in which indebtedness in Sub-Sahara Africa works against growth: current debt inflows as a ratio of GDP (which should stimulate growth), past debt accumulation (capturing debt overhang) and debt service ratio. The fourth indirect channel works through the impacts of the above channels on public sector expenditures. They found that debt accumulation deters growth while debt stock spurs growth. Their results also showed that the debt burden has led to fiscal distress as manifested by severely compressed budgets.

Ajayi and Oke (2012) investigation of the effect of external debt burden on economic growth and development of Nigeria using regression analysis of OLS showed that external debt burden had an adverse effect on the nation income and per capital income of the nation. They observed that the magnitude of the external debt outstanding mounted pressure on the economy since the eruption of the oil crisis in 1981 due to the rapid accumulation of trade arrears from 1982 the debt problem had been traced to the fall in the crude oil prices, collapse in commodity prices and the protracted softening of the world market since 1981 with the resultant decline in foreign exchange earnings and pressure on the balance of payment.

Sulaiman and Azeez (2012) examine the effect of external debt on the economic growth of Nigeria using econometric techniques of Ordinary Least Square(OLS), Augmented Dickey-Fuller (ADF) Unit Root test, Johansen Co-integration test and Error Correction Method (ECM) and found that external debt has contributed positively to the Nigerian economy. Oke and Sulaiman (2012) also examine the impact of external debt on the level of economic growth and the volume of investment in Nigeria and found that the current external debt ratio of GDP stimulates growth in the short term, but the Private Investment which is measure of real and tangible development shows a decline.

Monogbe (2016) investigated intergeneration effect of foreign debt on the performance of Nigeria economy with secondary data spanning from 1981 to 2014. The results show that external debt has positive and significant relationship with economic growth. According to Monogbe, this relationship suggests that using external debt for infrastructural, production and manufacturing project will stimulate economic activities, and hence promote economic growth.

Onyekwelu, Okoye and Ugwuanyi (2014) adopted Linear Regression and Analysis of Variance (ANOVA) to examine External Debts Management Strategies in developing economies and its implications on some key economic indices using Nigeria as a case study. The linear regression showed that there is a positive and significant relationship between the size of External Debts and Gross Domestic Product (GDP), Capital Expenditure, External Reserves and Exports. However, the Analysis of Variance (ANOVA) reveals a negative correlation between External Debts and the variables studied. Onyekwelu et al. (2014) attribute this anomaly to mismanagement of credit facilities, unfavourable loan terms characterized by capitalization/compounding of interests, weak economic base, poorly coordinated statistics on loans and overdependence on foreign aids among others.

Based on the assertion that debt, whichever type or form, is a major problem militating against African development stride, Osuji and Ozurumba (2013) researched the impact of external debt financing on economic growth in Nigeria with data covering 1969 to 2011. The VEC model estimate shows that London debt financing possessed positive impact on economic growth while Paris debt, Multilateral and Promissory note were negatively related to economic growth in Nigeria.

Ezeabasili, Isu, and Mojekwu (2011) examined the relationship between Nigeria's external debt and economic growth between 1975 and 2006 applying econometric analyses. The result of the error correction estimates revealed that external debt has negative relationship with economic growth in Nigeria. They stated that Nigeria must be concerned about the absorptive capacity noting that consideration about low debt to GDP, low debt service/GDP capacity ratios should guide future debt negotiations.

Kanu et al. (2014) investigated the impact of disaggregated components of external debt on the economic development of Nigeria for the period 1969 to 2011.Using least square regression analysis and unit root test, their findings revealed that in the short run, while multilateral and miscellaneous sources of external debt had positive significant relationships with economic development, promissory notes maintained a significant negative relationship. In the long run only the lagged value of GDP was found to be positively significant. In other words, there is no significant long run relationship between external debts and the level of economic development in Nigeria. Other sources of external debt that were hitherto significant in the short run, turned out to be insignificant in the long run. It was also ascertained that there exists a causality relationship between external debts and economic development in Nigeria.

Ojo (1996) affirms that it is no exaggeration to claim that Nigeria's huge external debt is one of the hard knots of the Structural Adjustment Programme introduced in 1986 to put the economy back on as sustainable path of recovery. The corollary of this statement is that if only the high level of this debt service payment could be reduced significantly, Nigeria would be in a position to finance larger volume of domestic investment, which would enhance growth and development. But, more often than not a debtor has only a limited room to manage a debt crisis to advantage.

However, Cohen (1993) results on the correlation between developing countries (LDCs) debt and investment in the 1980s showed that the level of stock of debt does not appear to have much power to explain the slowdown of investment in developing countries during the 1980s. It is the actual flows of net transfers that matter. He found that the actual service of debt 'crowded out' investment.

Research Methodology

The above model can thus be applied in this study as:

$$\%GDP = b_0 + b_1 ExtD + \mu \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\text{Eqn. (I)}$$

Where

%GDP – percentage change in Gross Domestic Product (proxy for Economic growth) {Dependent Variable}

ExtD – External Debt Nigeria (Independent Variable)

$$ExchR = b_0 + ExtD_1 + \mu\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\text{Eqn. (II)}$$

Where

ExchR – Real Effective Exchange Rate Indices for Nigeria (Dependent Variable)

ExtD – External Debt Nigeria (Independent Variable)

$$CPI = b_0 + b_1 ExtD + \mu\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\text{Eqn. (III)}$$

Where

CPI – Consumer Price Index {proxy for inflation} (Dependent Variable)

ExtD – External Debt Nigeria (Independent Variable)

Techniques of data analysis employed by the researcher is the ordinary least square method using the Statistical Package for Social Sciences (SPSS) Version 24. The researcher chose this method because it minimizes the squares of the residuals. The formulas for obtaining the estimates of the beta coefficients, standard errors, etc. are all based on this principle. The aim of using this method is to minimize the error in our prediction of the dependent variable, and by minimizing the residuals, error will be minimized. By using the "squares" the researcher is precluding the problem of signs thereby giving positive and negative prediction errors the same importance.

Justification for Decision Rule

We are running a combination of conditions (i.e. positivity and significance). To decide whether or not the null hypothesis can be rejected, we do not just depend on the significance level, we rather depend on both the significance level and the slope value. This will help us make a non-biased decision.

Data presentation and Analysis

Data Presentation

Necessary Econometric Variable from 2005 to 2014

Year	%GDP	ExchR	CPI	ExtD
2005	3.445	143.7826	61.9454	2695.072
2006	8.211	148.3301	67.04941	451.4617
2007	6.828	155.7536	70.65815	438.8909
2008	6.27	93.63937	78.83894	523.2541
2009	6.934	98.77098	87.93512	590.4371
2010	7.84	92.31046	100	689.8375
2011	4.887	89.7979	110.8408	896.8496
2012	4.279	80.60503	124.3822	1026.904
2013	5.394	63.59675	134.9246	1373.58
2014	6.31	59.65597	145.796	1631.52

Source: CBN Statistical Bulletin, 2014 and World Bank Database

DATA ANALYSIS

MODEL I: $\%GDP = b_0 + b_1 ExtD + \mu$

Decision Rule: Reject H_0 if p-value $\leq .05$ and slope ≥ 0, otherwise do not reject H_0.

Table 1   Model Summary

Equation 1		
	Multiple R	.724
	R Square	.524
	Adjusted R Square	.464
	Std. Error of the Estimate	1.120

Table 2   ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Equation 1	Regression	11.043	1	11.043	8.802	.018
	Residual	10.038	8	1.255		
	Total	21.081	9			

Table 3   Coefficients

		Unstandardized Coefficients		Beta	T	Sig.
		B	Std. Error			
Equation 1	(Constant)	7.653	.649		11.794	.000
	ExtD	-.002	.001	-.724	-2.967	.018

In the SPSS output above, the R of .724 shows that there is a strong positive relationship

between the dependent variable and the explanatory variable. The R-square of .524 shows that 52.4% of the variation in percentage change in GDP (%GDP) is explained by external debt (proxied by ExtD.). The Anova Table shows the overall significance of the model. The model is very significant (Sig. = .018 < .05).

The Coefficient shows the intercept, the slope and standard error. The intercept of 7.653 shows the value of External Debt when the dependent variable is constant (zero) while the slope of -.002 shows the value of the dependent variable as the explanatory variable changes, the slope of -.002 shows that at every percentage increase in ExtD, economic growth (proxied by %GDP) will decrease by 0.2%. After substituting the intercept, the slope and the standard error with its values from above SPSS output, it would be %GDP= 7.653 − .002ExtD + 1.120

Decision

Hypothesis I: External debt has no positive significant impact on economic growth in Nigeria

The P-value on which basis we can reject the null hypothesis that external debt has no positive significant impact on economic growth in Nigeria is .018, but the coefficient of correlation shows there is a negative relationship existing between external debt and economic growth (B = -.002). Hence, the researcher cannot reject the null hypothesis and state that external debt has no positive significant impact on economic growth in Nigeria.

MODEL II: ExchR = b_0 + b_1ExtD + μ

Decision Rule: Reject H_0 if p-value ≤ .05 and slope ≥ 0, otherwise do not reject H_0.

Table 4   Model Summary

Equation 1		
	Multiple R	.077
	R Square	.006
	Adjusted R Square	-.118
	Std. Error of the Estimate	36.678

Table 5   ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Equation 1	Regression	64.244	1	64.244	.048	.832
	Residual	10762.242	8	1345.280		
	Total	10826.486	9			

Table 6   Coefficients

		Unstandardized Coefficients		Beta	t	Sig.
		B	Std. Error			
Equation 1	(Constant)	106.514	21.246		5.013	.001
	ExtD	-.004	.017	-.077	-.219	.832

From the SPSS output above, the R of .077 shows that there is a weak positive relationship between the dependent variable and the explanatory variable as the R is far from 1. The R-square of .006 shows that 0.6% of the variation in exchange rate (proxied by ExchR) is explained by external debt (proxied by ExtD.). The Anova Table shows the overall significance of the model.

The model is very non-significant (Sig. = .832 > .05).

The Coefficient table shows the intercept, the slope and standard error. The intercept of 106.514 shows the value of External Debt when the dependent variable is constant (zero) while the slope of -.004 shows the value of the dependent variable as the explanatory variable changes, the slope of -.004 shows that at every percentage increase in External debt, Exchange rate will decrease by 0.4%. After substituting the intercept, the slope and the standard error with its values from above SPSS output, it would be ExchR= 106.514 – .004ExtD + 36.678

Decision

Hypothesis II: External debt has no positive significant influence on the value of Naira

The P-value on which basis we can reject the null hypothesis that external debt has no positive significant influence on the value of naira is .832, and the coefficient of correlation shows a negative relationship existing between external debt and the value of naira (B = -.004). Hence, the researcher cannot reject the null hypothesis and state that external debt has no positive significant influence on the value of Naira.

MODEL III: $CPI = b_0 + b_1ExtD + \mu$

Decision Rule: Reject H_0 if p-value ≤ .05 and slope < 0, otherwise do not reject H_0.

Table 7   Model Summary

Equation 1		
	Multiple R	.143
	R Square	.020
	Adjusted R Square	-.102
	Std. Error of the Estimate	31.272

Table 8   ANOVA

		Sum of Squares	Df	Mean Square	F	Sig.
Equation 1	Regression	162.837	1	162.837	.167	.694
	Residual	7823.297	8	977.912		
	Total	7986.134	9			

Table 9   Coefficients

		Unstandardized Coefficients		Beta	t	Sig.
		B	Std. Error			
Equation 1	(Constant)	92.044	18.114		5.081	.001
	ExtD	.006	.015	.143	.408	.694

From the SPSS output above, the R of .143 shows that there is a weak positive relationship between the dependent variable and the explanatory variable as the R is far from 1. The R-square of .020 shows that 2% of the variation in inflation (proxied by CPI) is explained by external debt. The Anova Table shows the overall significance of the model. The model is very non-significant (Sig. = .694 > .05).

The Coefficient table shows the intercept, the slope and standard error. The intercept of 92.044 shows the value of External Debt when the dependent variable is constant (zero) while the slope of .006 shows the value of the dependent variable as the explanatory variable changes, the slope

of .006 shows that at every percentage increase in External debt, CPI will increase by 0.6%. After substituting the intercept, the slope and the standard error with its values from above SPSS output, it would be CPI = 92.044 + .006ExtD + 31.272.

Decision

Hypothesis III: External debt have no positive significant influence on inflation in Nigeria.

The P-value and slope on which basis we can reject the null hypothesis that external debt has no positive significant influence on inflation in Nigeria is .694 and .006 respectively. Hence, the researcher cannot reject the null hypothesis and state that external debt has no positive significant influence on inflation in Nigeria.

Summary/Implication of Findings

1. External debt has no positive significant impact on economic growth in Nigeria.
   This supports the findings of [Elbadawi et al (1996); Ajayi and Oke (2012); Ezeabasili, Isu, and Mojekwu (2011)]. The result of the first hypothesis testing does not mean that our p-value wasn't significant. The decision rule includes two conditions under which the hypothesis can be rejected. The result met one of the conditions (p-value ≤ 0.05) and failed the other (slope ≥ 0).
2. External debt has no positive significant influence on the value of Naira.
   This shows that external debt has no positive influence on the value of naira. The generalizability of this result depends on whether the borrowed sum is used to finance investments in the country or expenditures. If it is used to finance investment, then the reverse will be the case, but if otherwise, then our finding can be generalized.
3. External debt has no positive significant influence on inflation in Nigeria.
   The third finding suggests that external debt will only hamper economic conditions by influencing inflation negatively.

Conclusion/Recommendations

This research work was able to show the negative impacts external debt on the major economic variables like inflation, economic growth and naira value.

The findings revealed in this work, suggests in every way that external debt is not something any economy should welcome for any reason, if the government cannot generate enough revenue to finance its expenditures, then let her make do with what she has.

Given the findings, the following are recommended:

1. Government should adopt efficient budgetary control measures to ensure they maintain a balanced budget in order to minimize the rate of external borrowing.
2. External debts should be obtained solely for reasons that could sustain or enhance economic growth and not for social or political reasons. This is to avoid accumulation of external debt stock overtime and prevent an obscuring of the motive behind external debt.
3. The Nigerian government should promote exportation of domestic productsin order to strengthen the Naira over international currencies as high exchange rate will make our goods more attractive in the foreign market and will increase foreign exchange earnings. This will help minimize external borrowing.
4. The Government should desist from borrowing externally for financing expenditures of any kind but rather for investment purposes which will help cover the cost of borrowing.

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