Journal of Taxation and Economic Development ISSN 1118-6017 Vol. 18, (1), March 2019

CAUSALITY LINK BETWEEN EXTERNAL DEBT AND ECONOMIC GROWTH IN NIGERIA

Badmus, Wasiu Alao
Accountancy Department
Osun State College of Technology, Esa-Oke, Nigeria
bwasiualao@gmail.com

Oladejo, Kamorudeen Wale
Accountancy Department.
Osun State College of Technology, Esa-Oke, Nigeria

Abstract:
Increasing level of External debt in Nigeria creates a fiscal deficits and budgetary constraints. Hence, this study examined the effect of External Debt on Economic Growth for the period 1986 -2017. Secondary data were extracted from Central Bank Statistical Bulletin (2017), Central Bank of Nigeria Statistical online database and Debt Management Office database. Gross Domestic Product at constant price that proxied Economic Growth was the dependent variable while External debt Stock, External debt repayment, Exchange rate and Inflation served as independent variables. With the aid of Eview 9 software, Multiple regression and Granger Causality test were conducted. Granger causality test shows there is a uni-directional causality between external debt stock and economic growth for this time frame of study. This paper recommends that external debt should be basically sourced for economic projects that will be self financing and not always for political/social issues.

Keywords: External Debt, Granger Causality, Economic Growth

Introduction

Adepoju, Salau, and Obayelu (2007) considered external debt as a medium used by countries to bridge their deficits and carry out economic projects that are able to increase the standard of living of the citizenry and promote sustainable growth and development. Hameed, Ashraf and Chaudary (2008) stated that external borrowing ought to accelerate economic growth especially when domestic financing is inadequate. External debt also improves total productivity of factors of production through an increase in output which in turn enhances Gross Domestic product (GDP) growth of a nation.

External debt may be defined as debt owed to non-residents repayable in terms of foreign currency, food or service (World Bank, 2004). The effect of external debt 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, 2005).

It is widely recognized in the international community that excessive foreign indebtedness in most developing countries is a major impediment to their economic growth and stability (Audu, 2004). Developing countries like Nigeria have often contracted large amount of external debts that has led to the mounting of trade debt arrears at highly concessional interest rates.

Nigeria has two major categories of external creditors; official and private creditors. Her official creditors include the International Fund for Agricultural Development (IFAD), African Development Fund (ADF), the International Bank for reconstruction and development (IBRD), the African Development Bank (AFDB), Economic Community of West African States (ECOWAS) fund and the European Investment Bank. The above listed are Nigeria's multilateral creditors which also include the World bank and International Monetary Fund (IMF) which were very active lenders in the 1970s/1980s. The bilateral creditors include the Paris Club and Non-Paris Club creditors. The Paris Club is an informal group of official creditors which was created to aid debtor countries going through payment difficulties by finding sustainable and lasting solutions. Also part of Nigeria's debt profile are private creditors which are made up of promissory note holders and the London Club group.

External borrowing has a significant impact on the growth and investment of a nation up to a point where high levels of external debt servicing sets in and affects the growth as the focus moves from financing private investment to repayments of debts. Pattilo, Poirson and Ricci (2002) asserted that at low levels debt has positive effects on growth but above particular points or thresholds accumulated debt begins to have a negative impact on growth. Furthermore Fosu (2009) observed that high debt service payments shifts spending away from health, educational and social sectors. This obscures the motive behind external borrowing which is to boost growth and development rather than get drowned in a pool of debt service payments which eats up most of the nation's resources and hinders growth due to high interest payments on external debt.

The divergent outcomes of research on the impact of external debt on economic growth necessitates the need for this study. This study also makes use of recent data by covering the research period 1986-2017.

The main objective of this study is to determine the direction of causality between external debt and economic growth in Nigeria.

Literature review:

Theoretical review

(Ademola, Olaleye and Olusuyi (2013) explained the theory of Debt laffer curve which emphasizes the relationship between the amount of debt repayment and the size of the debt. When the effect is so strong, the debtor is said to be on the wrong side of the laffer curve, the idea of the Laffer curve also implies that there is a limit to which debt incurred can stimulate growth. Once the debt exceeds the threshold point, it becomes a burden as the cost of debt servicing brings strain to the amount of resources available for productive investments, thereby crowding out investment which ultimately retards

growth. Investment which ultimately retards growth. This therefore implies that a reduction in the current debt service should lead to an increase in current investment for any given level of future indebtedness.

According to Ogbeifin (2007), external debt arises as a result of the gap between domestic savings and investment. As the gap widens, debt accumulates and this makes the country to continually borrow increasing amounts in order to stay afloat. This study hinged its argument on the theory of laffer curve.

Empirical review

Nigeria's external debt moved from US$ 0.763Billion in 1977 to US$ 5.09 in 1978 and US$ 8.855 in 1980 representing 73.96% between 1978 and 1980 (DMO). By 1985, external debt of Nigeria was US$19Billion. By December 2014, external debt stood at over US$34 Billion. This has continued to grow in that by 2005, president Obasanjo argued that Nigeria needed debt relief as it is clear that she cannot service and pay her debts. This was granted in 2006. Debt has started accumulating again with debt as at June 2015, it stood at US$10.317 Billion (Debt Management Office).

Pattillo, Helene and Luca (2004) investigated the channels through which external debt affects growth, especially whether debt affects growth through factor accumulation or total factor productivity growth. It also tested for the presence of non linearities in the effect of debt on the different source of growth. The study covered 61 developing countries over the period of 1996-1998. The result showed that negative impact of high debt on growth operates through a strong negative effect on physical capital accumulation and on total factor productive growth.

Kasidi and Said (2013) investigated the impact of external debt an economic of growth in Tanzania using time series of 1990-2010. The study revealed that there is significant impact of the external debt and debt service on GDP growth.

Ogege and Ekpudu (2010) examined the impact of debt burden on the Nigerian economy using time series data from 1970-2007. Ordinary least square (OLS) was used to test the relationship between debt burden and growth of the Nigeria economy. The result showed a negative relationship between debt stock of internal and external; and gross domestic product, meaning that an increase in debt stock will lead to a reduction on the growth rate of Nigerian economy.

Ayadi and Ayadi (2008) examined the impact of the huge external debt, with its servicing requirements on economic growth of the Nigerian and South African economies. The Neoclassical growth model which incorporates external debt, debt indicators, and some macroeconomic variables was employed and analyzed using both Ordinary Least Square (OLS) and Generalized Least Square (GLS) techniques of estimation. Their findings revealed that debt and its servicing requirement has a negative impact on the economic growth of Nigeria and South Africa.

However, Momodu (2012) examined the correlation between debt servicing and economic growth in Nigeria. The study sought to find a relationship between the Gross Domestic product (GDP) and Gross Fixed Capital Formation of Current Market Prices

(GFCF) using Ordinary Least Square multiple regression method. The study revealed that debt payment to Nigerian creditors has significantly impacted on the GDP and GFCF.

Many of the previous studies had concentrated their searchlight on effects and not on the direction of causality between external debt and economic growth in Nigeria.

Data and Methods of Research

The secondary data of external debt stock, external debt repayment, exchange rate, inflation and gross domestic product used in this study were Central Bank Statistical Bulletin (CBN, 2017), Central Bank of Nigeria Statistical online database and Debt Management Office database. Gross domestic product (GDP) was used as a proxy for economic growth which is a common choice in literature and its data were derived from Central Bank Of Nigeria Statistical Bulletin (2017). Other data were sourced from Debt management office (DMO) and CBN online database. The data were analyzed using the Econometric Model of Multiple Linear Regressions with the aid of Eview software package. The model specification is as presented below:

$$GDP = f(\text{External Debt variables}) \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (1)$$

The expression above can be written explicitly as:

$$GDP_t = \beta_0 + \beta_1 EDS_t + \beta_2 EDR_t + \beta_3 EXR_t + \beta_4 INF_t + U_t \ldots\ldots\ldots (2)$$

The explicit form of the model in (3) stated in log-linearized form is presented as:

$$LGDP_t = \beta_0 + \beta_1 LEDS_t + \beta_2 LEDR_t + \beta_3 LEXR_t + \beta_4 LINF_t + U_t \ldots\ldots\ldots (3)$$

Where:

GDP_t	=	Gross Domestic product (Economic Growth)
EDS_t	=	External debt stock
EDR_T	=	External debt repayment
EXR_t	=	Exchange rate
INF	=	Inflation
$LGDP_t$	=	log of Gross Domestic product (Economic Growth)
$LEDS_t$	=	log of External debt stock
$LEDR_T$	=	Log of External debt repayment
$LEXR_t$	=	log of Exchange rate
LINF	=	Log of Inflation
β_0	=	Constant
$\beta_1 - \beta_4$	=	Coefficient of variable
U_t	=	Error term

The model for granger causality test can be expressed as:

$$LGDPt = \sum_{i=1}^{n} \alpha i \, LEDSt - i + \sum_{j=1}^{n} \beta j LGDPt - j + U1t \ldots\ldots\ldots\ldots (4)$$

$$LEDSt = \sum_{i=1}^{n} \lambda i \, LGDPt - i + \sum_{j=1}^{n} \theta j LGDPt - j + U2t \ldots\ldots\ldots\ldots\ldots (5)$$

The above equation 4 and 5 is adapted for the main objective of this study which centered on the causality link between external debt and economic growth in Nigeria. According to Gujarrati (2003) while explaining concept of Granger Causality "If event A happens before event B, then it is possible that A is causing B. However, it is not possible that B is Causing A. Then, one can say event A granger causes event B".

Analysis of Data:

Table 1: Ordinary Least Square Regression Result

Dependent Variable: LGDP
Method: Least Squares
Date: 08/16/19 Time: 16:16
Sample: 1986 2017
Included observations: 32

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	26.97467	2.894331	9.319827	0.0000
LEDS	0.590056	0.084734	6.963598	0.0000
LEDR	-0.185178	0.133309	-1.389095	0.1762
LEXR	0.120426	0.021162	5.690672	0.0000
LINF	-0.253762	0.159160	-1.594379	0.1225

R-squared	0.733897	Mean dependent var	25.04974
Adjusted R-squared	0.694474	S.D. dependent var	1.119044
S.E. of regression	0.618545	Akaike info criterion	2.019707
Sum squared resid	10.33014	Schwarz criterion	2.248728
Log likelihood	-27.31531	Hannan-Quinn criter.	2.095621
F-statistic	18.61608	Durbin-Watson stat	1.877973
Prob(F-statistic)	0.000000		

Source: Researcher's Computation (2019)

Table 1 above shows the result of multiple regression that shows the effect of independent variables (external debt stock, external debt repaymemt, exchange rate and inflation) on the dependent variable (GDP).

The result revealed that external debt stock (LEDS), has a positive effect on economic growth. An increase in the LEDS will lead to about 59% increase in economic growth. The effect is statistically significant with P-value of 0.0000.

External debt repayment (LEDR) also has a negative effect on economic growth. An increase in LEDR will bring about 18.5% decrease in economic growth. The effect is not statistically significant with P-value of 0.1762

Exchange rate (LEXR) has appositive effect on economic growth. An improvement in exchange rate will lead to about 12% increase in economic growth. The effect is statistically significant with P-value of 0.0000.

Inflation has a negative impact on economic growth. An increase in inflation will bring about 29.5% decrease in economic growth. Though the effect is not statistically significant with P-value of 0.1225.

The multiple regression result gave coefficient of determination (R^2) of 0.733897. This implies the estimated model has a high forecasting power of 73.4%. The Durbin-Watson value of 1.87 which is very close to 2 is an indication of the absence of auto-correlation. The Prob [F-statistics] is 0.0000. This shows that all the independent variables taken together have significant effect on economic growth. Hence, for this study, external debt has significant effect on economic growth.

Table 2: Causality Test

Pairwise Granger Causality Tests
Date: 08/16/19 Time: 16:34
Sample: 1986 -2017
Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
LEDS does not Granger Cause LEDR	30	3.38577	0.0003
LEDR does not Granger Cause LEDS		15.17504	0.0000
LGDP does not Granger Cause LEDR	30	7.32029	0.0012
LEDR does not Granger Cause LGDP		0.05082	0.9505
LGDP does not Granger Cause LEDS	30	2.40484	0.1109
LEDS does not Granger Cause LGDP		8.28811	0.0300

Source: Researcher's Computation (2019)

Table 2 is the result of causality test using the pairwise approach which shows the Causal nexus between external debt stock, external debt repayment and GDP. In the first segment of the result, the p-value of 0.0003 and 0.0000 < 0.05 implied that the 2 null hypotheses can not be accepted. Hence, there is a bi-directional causality between external debt stock and external debt repayment for the observed period.

Second segment revealed that improvement in economic growth granger cause increase in external debt repayment. There is a uni-directional causality from LGDP to LEDR with p-value of 0.0012.

The third segment of result shows that external debt stock (LEDS) granger causes economic growth with p- value of 0.0300 < 0.05. However, economic growth does not granger cause external debt stock. There is a uni-directional causality from External debt stock to Economic growth.

Diagnostic test:

Table 3: Variance Inflation Factor

Variance Inflation Factors
Date: 08/16/19 Time: 22:08
Sample: 1986 2017
Included observations: 32

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	8.377152	700.6545	NA
LEDS	0.000448	23.05340	1.018445
LEDR	0.017771	666.8402	1.055749
LEXR	0.007180	10.46155	1.141865
LINF	0.025332	16.54980	1.122018

Source: Researchers' Computation (2019)

The result of the variance inflation (VIF) in table 3 shows that all the 4 explanatory variables are relevant to the study since the centered VIF are all below the benchmark of 10. This indicates the absence of multicolinearity in the model used.

Conclusion and Recommendation

The overall outcome of the regression as indicated by Prob(F-statisic) shows that external debts have significant effect on economic growth of Nigeria. Debt repayment therefore, negates economic growth through reduction in amount of available capital. Another fact is that external debt helps to exploit the potential of a country by allowing a nation to beat certain budget constraints. The study investigated the effect of external debt on economic growth and also examined the direction of causality between the two variables. The result shows that External Debt Stock granger causes Economic Growth with P- value of $0.0300 < 0.05$.

However, economic growth does not granger cause external debt stock. There is a uni-directional causality from External debt stock to Economic growth. the implication of this is that increase in external debt stock stimulates economic growth in Nigeria but repayment slows down rate of economic growth. Hence, Debt Management Office (DMO) should ensure that external debts are used for the purpose for which they were acquired. Especially on economic project that are self-financings and not on social/political jamboree that may continue to add to the existing external debt stock. Government should display a fiscal discipline which involves the habit of savings to withstand any shock from the economy instead of resolving into external borrowing. Government will be able to sustain economic activities with the accumulated savings. This will in turn avoid servicing of debt and recapitalization of arrears which adds pressure to the existing debt stock.

References

Ademola, I. S., Olaleye, S.O., & Olusuyi A. E. (2013). External Debt and the Nigerian Economy. International Journal of Humanities and Social science Invention. Vol.2

Adepoju, A.A., Salau, A.S., & Obayelu, A.E. (2007). The Effects of External Debt Management on Sustainable Economic Growth and Development: Lessons from Nigeria. *Munich Personal RePEC Achieve (MPRA)*. Paper No. 2147.

Albert,W., Brain, D., & Palitha, P.(2005). Economic Growth and External Debt Servicing: a cointegration Analysis of Sri Lanka 1952-2002. University of England School of Economics. Working Paper Series in Economics ISSN 14422980.

Audu, I (2004). "The Impact of External Debt on Economic Growth and Public Investment: The Case of Nigeria". *African Institute for Economic Development and Planning (IDEP) Dakar Senegal.* http://www.unidep.org.

Ayadi, F.S., & Ayadi, F.O (2008). The Impact of External Debt on Economic Growth: A Comparative Study of Nigeria and South Africa. *Journal of Sustainable Development in Africa.* 10 (3).

Central Bank Statistical Bulletin (2017).

Debt Management Office of Nigeria (DMO) online. www.dmo.gov.ng

Fosu, A.K (2009). The External Debt Servicing Constraint and Public Expenditure Composition: Evidence from African Economies. *UNU-WIDER.* Research Paper No. 2007/36.

Kasidi, F., & Said, A. M. (2013). Impact of External Debt on Economic Growth: A Case Study of Tanzania, *Advances in Management and Applied Economics,* 3(4): 59 – 82.

Momodu, A. A. (2012). Effect of Debt Servicing on Economic Growth in Nigeria *Reikojournals*.org

Ogege, S., & Ekpudu, J.E .(2010). The Effect of Debt Burden on the Nigerian Economy- *Journal of Research in National Development 8*(2).December.

Ogbeifun, M.I. (2007). The Politics of External Debt Relief: Nigeria's Unique Experience. *African Journal of Stability and Development.* 1(1).

Pattilo, C., Helen, P. & Luca, R. (2004). What are the channels through which External Debt affects growth. International Monetary Fund (IMF) working paper, Africa, Asia and Pacific department. w.p/04/15.

Patillo, L. Ricci and H. Poirson (2002). What are the Channels Through Which External Debt Affects Economic Growth? *IMF Working Paper.* No. W04/15

World Development Indicators.(2017)