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Article · January 2018

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External Debt and Economic Growth in Nigeria: Is there a Debt Laffer Curve?

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Abstract

The primary objective of this paper is to test the hypothesis that a debt Laffer curve exists for the Nigerian economy. A debt Laffer curve is a smooth inverted U shaped parabolic function showing a non-linear relationship between the rate of growth of real GDP and the stock of external debt. Basically, the debt Laffer curve shows that economic growth first rises with debt and later falls as the debt stock continues to grow. Clearly, the existence of a debt Laffer curve suggests that a high and rising external debt stock is inimical to economic growth. A second objective of the paper is to empirically test the validity of the debt overhang hypothesis for the Nigerian economy. "Debt overhang" may be defined as a situation in which the expected repayment on external debt falls short of the contractual value of debt, and therefore, the expected debt service is likely to be an increasing function of the country's output level. Thus, a debt overhang effect demonstrates the potential deleterious effect of external debt on an economy as rising debt militates against economic growth. Using quarterly data for the years 1981 through 2015, this study finds strong empirical evidence for the existence of both a debt overhang effect and a debt Laffer curve for Nigeria. Given these empirical results, the lesson that policymakers should take away is that every effort should be made to reduce Nigeria's external debt in order to promote rapid and sustainable economic growth in the years ahead.

Keywords: Debt; Growth; Laffer curve; Debt Overhang.

I. Introduction

Since the founding of nation-states, government borrowing has been a perennial feature of world trade and commerce, and a cornerstone of the process of economic development. Basically, developing countries have often found it expedient to borrow from foreign countries in order to accelerate their growth and development. This is due to the fact that developing countries often have insufficient financial and economic resources to grow at some targeted rate and thus are faced with the option of borrowing. External borrowing is, therefore, one of the sources of income of governments in developing countries. We may define external debt as the total debt owed by the public and private sectors of a given country to residents and foreign citizens, and which is payable in foreign currency, goods, and services. The expenditure nature of these borrowed funds is quite important as this will determine what happens to macroeconomic activities in the economy.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.

Soludo(2003) stated that, countries borrow for two major purposes: macroeconomic reasons to either finance higher investment or higher consumption, or to finance the transitory balance of payments deficits while benefiting from lower nominal interest rates abroad, and to circumvent hard budget constraint. This clearly implies that countries can borrow to enhance economic growth and alleviate poverty. He argued that when debt reaches a certain level, it begins to have an adverse effect as debt servicing becomes a huge burden and countries find themselves on the wrong side of the debt Laffer curve, with debt crowding out investment and growth.Indeed, it is generally believed that high levels of external debt have a negative impact on a given economy.In a study on Kenya, Were (2001), stated that external debt stock has a negative impact on private investment and economic growth; which confirms the existence of a debt overhang problem in Kenya. However, when capital inflows stimulate private investment, debt service payments do not appear to affect growth negatively but they would have some crowding out effect on private investment.

High levels of debt lead to a reduction in both private and public investment-- thereby having a declining effect on growth rates. Debt has a negative effect on an economy as high levels of

external debt indebtedness could significantly retard economic growth. Efthimimiadis and Tsintzos (2011), considered debt as a future tax on the output which leads to a discouragement of private sector investment plans and adjustment efforts on the part of governments.This magnitude of debt can lead to a debt overhang. According to (Krugman 1988), debt overhang may be defined as a situation in which the expected repayment on external debt falls short of the contractual value of debt, and therefore expected debt service is likely to be an increasing function of the country's output level.

Note that in addition to the debt overhang problem, high external debt reduces investment and growth through the "crowding out" effect and the credit rationing effect. Indeed, a careful reading of the literature shows that there are at least 5 transmission mechanisms (or channels) through which external debt lowers investment and growth in developing countries. These include: (i) the debt overhang which acts as an anticipated foreign tax on both current and future income. Thus, "since part of the future return on any investment will accrue to the creditor as bigger debt service payments, it discourages capital accumulation and promotes capital flight" (See Omoruyi, 2016, pp. 179-192) and (Serven and Solimano, 1993, p. 131). (ii) There is the credit rationing effect. An indebted country is likely to face credit constraints in international capital markets. This is equivalent to facing higher real interest rates which would discourage investment. Since there is reduced access to international financing, this will shift the burden of financing the budget to the domestic sector. Depending on how this is done, it can lead to increasing inflation or higher domestic interest rates. Higher interest rates and rising inflation have deleterious effects on investment. (iii) Government is responsible for making debt service payments in sub-Saharan African countries and these payments are reflected in the budget. To the extent that a devaluation raises the domestic currency cost of servicing foreign currency debt, it can prevent a devaluation from improving the trade balance. Thus, the budget deficit may be increased, "raising the growth of the money supply and increasing the inflation rate. Therefore, debtors must use less efficient methods to produce the trade surpluses required to make debt service payments" (Kenen, 1990, p. 10). (iv)As a result of the complementarity between public and private investment, the amount of money that is used to service debt crowds out public investment and discourages private investment.

Finally, (v) there is a high degree of uncertainty in the current rescheduling exercises; countries are never too sure of what they face and a lot of time and resources are spent negotiating. This increased uncertainty increases instability in the pursuit of macroeconomic objectives and thereby discourages domestic investment. Disincentive effects of investment may also arise from investors' expectations about macroeconomic policies which are required to service the large external debt. If investors expect, for example, that large swings in prices, taxation of profits and inappropriate compensation for investments may occur, investment will be depressed. Several researchers including Audu (2004), Iyoha (1997a and 2000a), and Chibber and Pahwa(1994) have found empirical evidence for the existence of a debt overhang effect in Nigeria. This suggests that, overall, high debt and debt service burden have militated against Nigeria's rapid economic development and worsened the social problems. So far as we know, there has been no specific study investigating the existence of a smooth inverted U-shaped debt Laffer curve for Nigeria. The current paper attempts to fill this identified gap.

II. Stylized facts regarding Nigeria's External Debt, 1958-2014

The exposition in this section relies heavily on the analysis and research results reported in Iyoha and Ighodaro (2013). The origin of the external debt in Nigeria dates back to 1958 when a loan of US$28.0 million was contracted from the World Bank for railway construction. Interests charged on public loans were relatively small, averaging N3.2 million per annum and representing 0.2 percent of GDP (Obadan, 2003). Between 1958 and 1977, debts contracted were the concessional debts from bilateral and multilateral sources with longer repayment periods because the country had little needs to much external borrowing (Adepoju, Salau, and Obayelu, 2007). Consequently, during the first two decades of Nigeria's political independence, external debt obligations did not present any serious problems to the economy (Obadan, 2003). Nigeria's external debts have been increasing over time because of a proportional shortage of foreign exchange to meet some of her developmental needs. The fall in oil prices in the late 1970s had a devastating effect on government aggregate expenditure. It, therefore, became necessary for the government to borrow in 1978 for balance-of-payments support and project financing. Meanwhile, the government promulgated Decree No 30 of 1978 which limited the external loans the Federal Government could raise to 5billion Naira (Adepoju, Salau &Obayelu, 2007).

Between 1960 and 1970, external debt stock averaged US$160.4 million per annum. As at 1970 as shown in the Figures 1 and 2, total external public debt in Nigeria was US$246.0 million representing about 252 percent increase from 1960 figure. This rose to US$906.0 million in 1976 and US$3,146.0 million in 1977 representing an increase of 247.2 percent from 1976 figure. As at 1980, Nigeria's oil export earnings reached $25 billion but were down to about $12 billion in 1982 and to $6 billion in 1986. Spending meanwhile remained high, largely financed by external borrowing. Virtually all of this borrowing was on commercial or quasi-commercial terms. Nigeria was not eligible for the soft-loan financing provided by multilateral and bilateral aid agencies to other countries as OPEC member at that time (Rieffel, 2005). In 1980, the total external debt stock in Nigeria was US$8,921.0 million. This increased by 34.8 percent in 1981, reduced by 7.6 percent in 1982 and as at 1983, total debt stock has increased to US$17,754.0 million representing an increase in debt stock by 37.1 percent.

Between 1983 and 1988, Nigeria found herself not being able to settle her import bills which resulted in the accumulation of trade arrears amounting to about US$9.8 billion. The insured component of the total sum was US$2.4 billion while the uninsured was US$7.4 billion. Between 1985 and 1990, the total stock of external debt has risen to US$33.1 billion representing an increase in debt stock from 8.4 percent in 1988 from 1987 figure down to 2.9 percent in 1989. This rose again by 4.8percent in 1990. 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$3.1 billion (Adepoju *et al,* 2007).

In 1990, Nigeria's external debt rose again to US$33.1 billion. After a brief decline to US$27.5 billion in 1992, it rose steadily to US$32.6 billion at the end of 1995 representing an increase of about 10.7 percent from 1994 figure. In the second half of the 1990s, the growth rate of the external debt stock was generally negative or low such that the average growth rate over the 1996 – 2000 period was -2.6 percent. The debt stock stood at US$28,273.7 million in 2000 representing a marginal increase of 0.7 percent from 1999 figure (Obadan, 2003). From 2001, the debt stock resumed its upward trend, rising to US$35,944.7 million in 2004 representing an increase of about 9.2 percent.

Arising largely from a successful debt relief agreement with the Paris Club of creditors, Nigeria's external debt stock fell dramatically from$35.9 billion in 2004 to approximately $5.5 billion in 2005, after a comprehensive debt relief package on its $30.4 billion Paris Club debt. As explained by Okonjo-Iweala and Osafo-Kwaako (2007: 11), the unprecedented debt relief package involved payment of outstanding arrears of $6.4 billion, a debt write-off of $16 billion, and a debt buyback of the remaining $8 billion (at a 25 percent discount) for $6 billion.As at the second quarters of 2013, the total stock of the country's external debt climbed up to US$6.92 billion (CBN, 2013). At the end of December, 2013, the country's total external debt stock stood at U$8.821 billion, indicating an increase of 6.75 percent over the US$8.264 billion recorded in the third quarter of the year. See Appendix Table A1 for data on debt stock.

It is against this backdrop that, this study proposes to empirically examine the effect of external debt on economic growth in Nigeria.In particular, an attempt will be made to test the existence of an inverted U-shaped debt Laffer curve in Nigeria. The next section presents a brief literature review while section four deals with the theoretical framework, the methodology adopted and a comprehensive interpretation of the empirical results. section five gives the conclusion and summary of the paper.

III.   Literature Review

Sulaiman and Azeez (2012), in their study examined the effect of external debt on the economic growth of Nigeria from 1970 to 2010 using Johansen Co-integration test and Error Correction Method (ECM) for their estimation. Their empirical result showed that external debt has contributed positively to the Nigerian economy. The study recommends that government should ensure economic and political stability and external debt should be acquired largely for economic reasons rather than social or political reasons.

Ogunmuyiwa (2011) investigated the relationship between external debt and economic growth in Nigeria using time-series data from 1970-2007. The regression equation was estimated using econometric techniques such as Augmented Dickey-Fuller test, Granger causality test, Johansen co-integration test and Vector Error Correction Method (VECM). The results revealed that causality does not exist between external debt and economic growth in Nigeria.

Malik, Hayat, and Hayat (2010) explored the relationship between external debt and economic growth in Pakistan for the period between 1972 – 2005, using a time series econometric technique. Their result shows that external debt is negatively and significantly related to economic growth. The evidence suggests that increase in external debt will lead to a decline in economic growth.

Choong, Lau, Liew, and Puah (2010) examined the effect of different types of debts on the economic growth in Malaysia during the period 1970 – 2006. Using Co-integration test, the findings suggest that all components of debts have a negative effect on long-run economic growth. The Granger causality test reveals the existence of a short-run causality linkage between all debt measures and economic growth.

Adesola (2009) empirically investigated the effect of external debt service payment practices on the economic growth of Nigeria using data from 1981 to2004. Ordinary Least Square method of multiple regression was used to examine how debt payment to multilateral financial creditors, Paris club creditors, London club creditors, Promissory Notes holders and other creditors relate to a gross domestic product (GDP) and gross fixed capital formation (GFCF). The study provides evidence that debt payment to Paris club creditors and Promissory Notes holders are positively related to GDP and GFCF while debt payment to London club creditors and other creditors show negatively significant relation to GDP and GFCF.

A study by Hameed et al. (2008) on Pakistan analyzed the long run and short run relationships between external debt and economic growth. Annual time series data from 1970 to 2003 was obtained to examine the dynamic effect of GDP, debt service, capital stock and labor force on her economic growth.The study concludes that debt servicing burden has a negative effect on the productivity of labor and capital, thereby adversely affecting economic growth.

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 squares (OLS)

and Generalized Least Square (GLS) methods. Their finding revealed negative impact of debt and its servicing requirement on the economic growth of Nigeria and South Africa.

Adepoju, Salau, and Obayelu (2007) analyzed the effects of external debt management on the economic growth of Nigeria for a period between 1962 to 2006 using time-series data of the various bilateral and multi lateral arrangement. Their study concluded that accumulation of external debt adversely affected Nigeria's economic growth.

Abdelmawla and Mohammed (2005) investigated the impact of external debt on economic growth of Sudan from a period spanning 1978 – 2001. The study showed that export earnings has a significant positive impact while external debt and inflation had negative impact on Sudan's economic growth.

Audu (2004) examined the impact of external debt on economic growth and public investment in Nigeria from 1970-2002. The empirical investigation was done using the-integration test and Error Correction Method. The study shows that debt servicing pressure in the country has had a significant adverse effect on the growth process and past debt accumulation negatively affect public investment

Karogol (2002) investigated both the short-run and long-run relationships between economic growth and external debt service for Turkey during 1956 – 1996. The study employed a standard production function model analyzed using multivariate co-integration techniques. The Vector Autoregression estimates showed that there exists one-integration equation. It also revealed that debt service is negatively related to economic growth in the long-run.The causality test showed uni-directional causality between debt service and economic growth.

Iyoha (1999) employed a simultaneous equations model for output and investment demand to undertake a simulation of the impact of external debt on economic growth in sub-Saharan African countries. The study found that there is a significant debt overhang and crowding out effect in Sub-Saharan Africa. This implies that, the large stock of external debt and heavy debt service payments have had a depressing effect on investment and growth in sub- Saharan African countries in the 1990s.

Iyoha (2000a) empirically tests the validity of the debt overhang theory as it relates to Nigeria and undertakes a comprehensive investigation of the impact of external debt reduction on economic growth in Nigeria, using policy simulation. It was found that there is a significant debt overhang effect as well as a crowding out effect. Dynamic simulations showed that a 75 percent debt stock reduction would have raised the investment/GDP ratio by 8.6 percent and increased real GDP by 7.8 percent between 1986 and 1994.

IV, Theoretical framework, Methodology and Empirical Results

4,1   An Empirical Verification of the Debt Overhang Hypothesis

The poor investment and growth performance of many highly indebted countries since the onset of the global debt crisis in 1982 has been attributed in part to the disincentive effect of their external debt burden. This phenomenon is often referred to as the debt "overhang". The debt overhang hypothesis posits that the accumulated external debt of these countries acts as a tax on future output and thus discourages private investment. The theoretical case for debt overhang has been made by several authors including Dooley (1986), Krugman (1988), Sachs (1989), Froot (1989) and Calvo (1989). Some attempts have also been made to empirically test the hypothesis. Among these, we may cite Borensztein (1990), Cohen (1990), Borensztein (1991), Warner (1992), Degefe (1992) and Iyoha (1995).

Borensztein (1990) was the first major attempt to empirically test the debt overhang effect. Using data for the Philippines, he found that the debt overhang hypothesis was largely valid. Specifically, he found that debt overhang has an adverse effect on private investment. Borensztein found that the debt overhang effect was strongest when private debt, rather than total debt, was used as a measure of debt overhang.

THE 2-GAP MODEL

The two gaps of the model refer to the savings gap and the foreign exchange gap (often measured by the balance-of-payments deficit) (Johnson, 1967; Pincus, 1967; McKinnon, 1964; and

Rosenstein-Rodan, 1961). The savings gap is simply the difference between the investment required to grow at a certain rate and the domestic savings forthcoming. Using the Harrod-Domar model, the savings gap is obtained as

$$(g^* - sv)K \qquad\qquad \textbf{1}$$

where g* is the desired rate of growth of the LDC, s is the savings rate, v is the reciprocal of the capital-output ratio and K is the capital stock in the LDC. Thus, suppose the value of capital stock is $500 million; the required growth rate of output is 6%; the savings rate is 12% and the capital-output ratio is 3, then foreign aid of $10 million will close the savings gap.

The foreign exchange gap is obtained as

$$(e_2 g_2^* - e_1 g_1)K_2 \qquad\qquad \textbf{2}$$

where e_i = income elasticity of demand in country i, 1= advanced country and 2 = LDC; g^*_2 is the desired growth rate in the LDC, g_1 is the growth rate in the advanced country and K_2 is the capital stock of the LDC (Johnson, 1958).

Researchers have basically tested the debt overhang hypothesis by running a growth regression on the debt stock and selected control variables. The control variables have usually included openness, agricultural sector output, foreign direct investment government expenditure, exchange rate and the balance of payments. See Chibber and Pahwa (1994), Baraki (2005), Iyoha (1997), and Iyoha (2000a). Accordingly, we specify the following equation for determining the rate of economic growth in Nigeria:

dlogRGDP = a0 +a1XDEBT + a2RYAGR +a3DEXP + a4EXRT + a5FDI + ut   1

where

dlogRGDP is the growth rate of real GDP

RYAGR is the real output of the agricultural sector

GEXP is government expenditure

EXRT is the nominal exchange rate

FDI is foreign direct investment and

Ut is the stochastic error term

Using quarterly data obtained from the Central Bank of Nigeria and the ordinary least squares regression technique, we obtain the following econometric results:

Model 1: Cochrane-Orcutt, using observations 1981:3-2013:4 (T = 130)
Dependent variable: ld_RGDP
rho = 0.0431066

	Coefficient	Std. Error	t-ratio	p-value	
Const	-0.124931	0.0261182	-4.7833	<0.00001	***
XDEBT	-4.87306e-07	8.65688e-07	-0.5629	0.57451	
RYAGR	8.175e-06	7.00908e-07	11.6634	<0.00001	***
GEXP	-4.33859e-07	6.3744e-08	-6.8063	<0.00001	***
EXRT	-0.000462689	0.000233247	-1.9837	0.04950	**
FDI	-2.44961e-07	1.43771e-07	-1.7038	0.09092	*

Statistics based on the rho-differenced data:

Mean dependent var	0.013220	S.D. dependent var	0.098338
Sum squared resid	0.591895	S.E. of regression	0.069089
R-squared	0.525688	Adjusted R-squared	0.506562
F(5, 124)	27.87835	P-value(F)	7.72e-19
Rho	0.017071	Durbin-Watson	1.961176

4.2 An Empirical Verification of the Existence of a debt Laffer curve for Nigeria

In what follows, we imitate Patillo, Poirson and Ricci (2002) and Baraki (2005) by fitting a quadratic economic growth function in debt stock and selected control variables to test the existence of a smooth inverted U-shaped debt Laffer curve in Nigeria, employing quarterly data for 1981 through 2013. Note that for an inverted-U type quadratic relationship to exist, the coefficient of the debt variable should be positive and statistically significant and that of its squared value should be negative and statistically significant. Naturally, we utilize the control variables already identified above. Thus, we specify the following parabolic function for estimation:

dlogRGDP = b0 + b1XDEBT + b2XDEBTSQ + b3RYAGR + b4GEXP + b5EXRT + b6FDI + ut
(2)

where

XDEBTSQ is the square of external debt stock and all the other variables are as already defined.

The following estimated quadratic equation is obtained using the OLStechnique and quarterly time-series data from the CBN

:Model 2: OLS, using observations 1981:2-2013:4 (T = 131)

Dependent variable: ld_RGDP
HAC standard errors, bandwidth 3 (Bartlett kernel)

	Coefficient	Std. Error	t-ratio	p-value	
Const	-0.177008	0.0286685	-6.1743	<0.00001	***
XDEBT	6.30998e-06	2.84766e-06	2.2158	0.02853	**
sq_XDEBT	-1.76492e-010	7.31522e-011	-2.4127	0.01730	**
RYAGR	8.3119e-06	8.33505e-07	9.9722	<0.00001	***
GEXP	-4.18807e-07	5.38061e-08	-7.7836	<0.00001	***
EXRT	-0.000439483	0.00025036	-1.7554	0.08166	*
FDI	-2.80992e-07	9.05319e-08	-3.1038	0.00237	***

Mean dependent var	0.012812	S.D. dependent var	0.098071
Sum squared resid	0.576953	S.E. of regression	0.068212
R-squared	0.538557	Adjusted R-squared	0.516229
F(6, 124)	22.78633	P-value(F)	5.57e-18
Log-likelihood	169.4691	Akaike criterion	-324.9382
Schwarz criterion	-304.8118	Hannan-Quinn	-316.7599
rho	0.016053	Durbin-Watson	1.967135

Estimated results of the quadratic model displayed above offer strong evidence for the existence of a smooth inverted U-shaped debt Laffer curve since the coefficients of the debt stock variable and its squared value satisfy the requirements of an inverted-U type quadratic relationship, namely, a positive and significant coefficient for the debt stock variable and a negative and significant coefficient for the square of the debt stock variable.The overall fit is satisfactory with an R-squared of 54 percent and an F-statistic of 22.79. This F-statistic is highly significant, passing the significance test at the 1 percent confidence level. Thus, the hypothesis of a quadratic relationship is validated. The coefficients of external debt and its square are correctly signed and significantly different from zero at the 5 percent confidence level. Thus, the hypothesis of a smooth inverted U-shaped debt Laffer curve for Nigeria is validated. Note that the coefficient of the output of the agricultural sector is positive and highly significant, effortlessly passing the significance test at the 1 percent confidence level. This confirms the widespread belief that growth of the Nigerian economy is driven by the non-oil (and in particular, the agricultural) sector.

V. **Summary and Conclusion**

In this paper, an attempt has been made to validate the existence of a debt Laffer curve for the Nigerian economy in addition to investigating the existence of a debt overhang effect. A debt Laffer curve is a smooth inverted U shaped parabolic function showing that economic growth first rises and later falls as the debt stock grows. The existence of a debt Laffer curve thus demonstrates that a high and rising debt stock is inimical to economic growth and development. A debt overhang effect also demonstrates the deleterious effect of external debt on an economy as rising debt militates against economic growth. Using quarterly data for the years 1981 through 2015, this study finds strong empirical evidence for the existence of both a debt overhang effect and a debt Laffer curve for Nigeria. The policy implication of these econometric results is that all hands should be on deck to reduce Nigeria's external debt in order to promote rapid and sustainable economic growth in the years ahead.

REFERENCES

Abdelmawla & Mohammed (2005). The Impact of External Debt on Economic Growth: An Empirical Assessment of the Sudan: 1978 – 2001, *Eastern Social Science Research Review,* Vol. 21(2), 53-66.

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, *MPRA. Paper* No. 2147.

Adesola, W.A. (2009). Debt Servicing and Economic Growth in Nigeria: An Empirical Investigation, *GlobalJournal of Social Sciences,* Vol. 8, No. 2, 1-11.

Ajayi, S. I. and M. A. Iyoha (1998). "Debt overhang and debt forgiveness: The case of the severely-indebted low-income countries of sub-Saharan Africa". *Journal of Economic Management*, vol. 5, no. 1, January.

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.

Ayadi, F.S & Ayadi, F.O (2008). The Impact of External Debt on Economic Growth: A Comparative Study ofNigeria and South Africa, *Journal of Sustainable Development in Africa,* Vol. 10, No.3, 234-264.

Baraki, A. H. (2005). *External Debt and Economic Growth in sub-Saharan Africa: A Cross-Country Panel Data Analysis*. Institute of Social Studies. The Hague.

Borensztein, E. (1991), "Will debt reduction increase investment?" *Finance and Development*, vol. 28, no. 1 (March).

CBN, Statistical Bulletin various issues. Abuja.

Chenery, H. and A. Strout (1966). "Foreign assistance and economic development". *American Economic Review*, vol. 56, no. 4 (September).

Choong, C., Lau, E., Liew, V.K., & Puah, C. (2010). Does Debts Foster Economic Growth?: The Experience ofMalaysia, *African Journal of Business Management,* Vol. 4(8), 1564-1575.

Domar, E.D. (1946). "Capital expansion, rate of growth and employment, *Econometrica* (April).

Efthimiadis T. & Tsintzos P.(2011), The Share of External Debt and Economic Growth. Centre of Planning and Economic Research No. 115

Elbadawi, Ibrahim A., Benno J. Ndulu, and NjuguanaNdung'u, (1997), Debt Overhang and Economic Growth in Sub-Saharan Africa, in ZubairIqbal and Ravi Kanbur (eds), *External Finance for Low Income Countries,* Washington: International Monetary Fund.

Harrod, R.F. (1948). *Towards a Dynamic Economics*. New York: St Martins.

Iyoha, M. A. (2000a). "The impact of external debt reduction on economic growth in Nigeria: Some simulation results."*Nigerian Journal of Economic and Social Studies*, vol. 42, no. 2, July.

Iyoha, M. A. (2000b). "An econometric analysis of external debt and economic growth in sub-Saharan African countries". In S.I. Ajayi and M.S. Khan (Eds.), *External Debt and Capital Flight in sub-Saharan Africa*. Washington, D.C.: International Monetary Fund.

Iyoha, M. A. (1999). "External debt and economic growth in sub-Saharan African countries: An econometric study." *Research Paper 90, AERC Research Paper Series.* Nairobi, Kenya: African Economic Research Consortium, March.

Iyoha, M. A. (1997a). "An econometric study of debt overhang, debt reduction, investment and economic growth in Nigeria." *NCEMA Monograph No. 8*. Ibadan: NCEMA.

Iyoha, M. A.   (1997b) "Policy Simulations with a model of External Debt and Economic Growth in sub-Saharan African Countries." *Nigerian Economic and Financial Review*, vol. 2, no. 2.

Iyoha, M. A., and C. A. Ighodaro. (2014). "Sovereign Debt Restructuring Mechanism in the Context of the Nigerian Economy". *The Certified National Accountant*, vol. 22, no. 6, pp. 8- 17. November-December.

Iyoha, Milton A. (2016). "The Impact of External Debt on Economic Growth and Development in Nigeria".*The Certified National Accountant*, volume 24, number 3, May-June.

Iyoha, M. A., C. A. Ighodaro and B. O. Oligbi. (2016). "Nigeria's External Debt Overhang: An Econometric Investigation". *West African Financial and Economic Review*, vol. 15, no 2.December.

Johnson, H.G. (1967). *Economic Policies Towards Less Developed Countries*. Washington, D.C.: The Brookings Institution.

Johnson, H.G. (1958). *International Trade and Economic Growth*. Cambridge, Mass: Harvard University Press.

Kruger, Anne O. (1991), Developing Countries' Debt Problems and Growth Prospects, in Adjustment and Liberalization, in: H. W. Singer, Neelambar Hatti and Rameshwar Tandon, (ed), Adjustment and Liberalization in the Third World, New Delhi: Indus Publishing Company.

Krugman, Paul (1988), Financing Vs Forgiving a Debt Overhang, Journal of Development Economics, Vol. 29, pp. 253-268.

Karagol, E. (2002). The Causality Analysis of External Debt Service and GNP: The Case of Turkey, *Central BankReview*, 2(1), 39-64.

Malik, S., Hayat, M.K. & Hayat, M.U (2010). External Debt and Economic Growth: Empirical Evidence from Pakistan", *International Research Journal of Finance and Economics,* ISSN 1450-2887, Issue 44, 88-97.

McKinnon, R. (1964). "Foreign exchange constraints in economic development". *Economic Journal* (June).

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

Ogunmuyiwa, M.S. (2011). Does External Debt Promote Economic Growth?, *Current Research Journal ofEconomic Theory* 3(1), 29 – 35.

Omoruyi, S. E. (2016). *Public Debt Management: Theory and Application.* West African Institute for Financial and Economic Management. Lagos, Nigeria.

Pattillo, Catherine, H6lime Poirson and Luca Ricci (2002), external debt and growth, finance & development: a quarterly magazine of the I.MF, vol. 39, no. 2.

Sachs, J. (1989), "The debt overhang of developing countries", in G. Calvo, R. Findlay, P. Kouri and J. Macedo (eds.) Debt, Stabilization, and Development: Essays in Memory of Carlos Diaz Alejandro (Oxford: Basil Blackwell).

Soludo, C.C. (2003). Debt Poverty and Inequality in Okonjo Iweala, Soludo, and Muntar (Eds), *The Debt Trap in Nigeria*, Africa World Press. N.J., pp. 23-74.

Sulaiman, L.A and Azeez, B.A.(2012). Effect of External Debt on Economic Growth of Nigeria. Journal of Economics and Sustainable Development www.iiste.orgISSN 2222-1700 (Paper) ISSN 2222-2855 (Online)Vol.3, No.8, 2012

Were, M. (2001). The Impact of External Debt on Economic Growth in Kenya: AnEmpirical Assessment. *World Institute for Development Economics Research. DiscussionPaper No. 2001/116.*

Appendix

Table A1: Nigeria's External Debt Outstanding (N' Billion)

Years	Multilateral	Paris Club	London Club	Promissory Notes	Others	T
1981	0.18	1.98	0.00	0.00	0.18	
1982	0.53	5.47	1.98	0.00	0.83	
1983	0.57	6.00	2.76	0.55	0.70	
1984	1.27	6.36	5.44	1.16	0.58	
	1.29	7.73	6.16	1.27	0.84	
1986	4.67	21.73	8.44	4.15	2.46	
1987	8.78	63.21	6.77	20.63	1.40	
	9.99	75.45	14.99	25.74	7.79	
1989	21.47	121.23	42.84	35.07	19.78	
1990	34.61	154.55	53.43	40.95	15.08	
1991	39.46	173.05	58.24	43.56	14.14	
1992	89.27	324.73	41.89	64.14	24.23	
1993	81.46	400.38	45.32	69.67	36.32	
1994	97.06	404.21	45.37	70.07	32.11	
1995	97.04	476.73	44.99	69.26	28.85	
1996	102.63	420.00	44.95	47.08	2.66	
1997	96.20	417.57	44.95	35.48	1.74	
1998	93.21	458.26	44.95	35.15	1.45	

1999	361.19	1,885.66	187.63	136.52	6.36
2000	379.04	2,320.27	223.83	158.49	15.75
2001	313.50	2,475.51	228.95	144.75	13.58
2002	375.70	3,220.82	182.96	146.34	7.06
2003	413.88	3,737.28	196.16	123.99	7.02
2004	384.25	4,196.84	196.16	106.56	6.46
2005	330.65	2,028.58	189.77	85.53	60.54
2006	332.22	0.00	0.00	64.83	54.41
2007	374.30	0.00	0.00	0.00	64.59
2008	464.56	0.00	0.00	0.00	58.70
2009	524.20	0.00	0.00	0.00	66.23
2010	635.45	0.00	0.00	0.00	54.39
2011	723.12	0.00	0.00	0.00	173.73
2012	727.32	0.00	0.00	0.00	299.58
2013	977.05	0.00	0.00	0.00	396.53
2014	1,142.29	0.00	0.00	0.00	489.23
2015	1,489.40	0.00	0.00	0.00	622.13

Sources: Central Bank of Nigeria and Debt Management Office

Summary Statistics, using the observations 1981:1 - 2013:4

Variable	Mean	Median	Minimum	Maximum
ld_RGDP	0.0128122	0.0166334	-0.306547	0.202618
XDEBT	21097.0	27723.7	2732.54	35944.7
sq_XDEBT	5.69330e+008	7.68614e+008	7.46677e+006	1.29202e+009
GEXP	283533.	102764.	2335.72	1.34765e+006
EXRT	62.8769	21.8861	0.550467	157.308
FDI	67182.1	23339.0	-5.24531	481358.
RYAGR	38730.6	26007.3	12545.2	108946.

Variable	Std. Dev.	C.V.	Skewness	Ex. kurtosis
ld_RGDP	0.0980708	7.65450	-0.992460	2.57704
XDEBT	11189.0	0.530361	-0.538740	-1.37584
sq_XDEBT	4.11282e+008	0.722398	-0.225514	-1.52072
GEXP	353192.	1.24568	1.19878	0.240819
EXRT	58.9786	0.938002	0.237741	-1.77543

Variable	5% Perc.	95% Perc.	IQ range	Missing obs.
FDI	96459.2	1.43579	1.75216	2.78751
RYAGR	25946.9	0.669934	1.08532	-0.0115683
ld_RGDP	-0.232849	0.193774	0.0890452	1
XDEBT	3493.04	33469.7	22091.9	0
sq_XDEBT	1.22062e+007	1.12023e+009	8.37074e+008	0
GEXP	2519.39	1.06262e+006	480656.	0
EXRT	0.678078	148.530	120.943	0
FDI	70.9278	283049.	116657.	0
RYAGR	14476.3	95359.7	36088.6	0

Correlation coefficients, using the observations 1981:1 - 2013:4
5% critical value (two-tailed) = 0.1710 for n = 132

ld_RGDP	XDEBT	sq_XDEBT	RYAGR	GEXP	
1.0000	0.0016	0.0058	0.2898	0.0392	ld_RGDP
	1.0000	0.9845	-0.5448	-0.6340	XDEBT
		1.0000	-0.4805	-0.5765	sq_XDEBT
			1.0000	0.9326	RYAGR
				1.0000	GEXP

EXRT	FDI	
0.0841	0.0520	ld_RGDP
-0.3565	-0.6031	XDEBT
-0.2939	-0.5565	sq_XDEBT
0.8528	0.8601	RYAGR
0.8471	0.8892	GEXP
1.0000	0.7428	EXRT
	1.0000	FDI

Model 3: AR(1), using the Prais-Winsten, using observations 1981:2-2013:4
Dependent variable: ld_RGDP
rho = 0.0190068

	Coefficient	Std. Error	t-ratio	p-value	
const	-0.177884	0.0362439	-4.9080	<0.00001	***
XDEBT	6.3373e-06	3.65379e-06	1.7344	0.08532	*
sq_XDEBT	-1.76936e-010	9.36634e-011	-1.8891	0.06122	*
RYAGR	8.34173e-06	6.99595e-07	11.9236	<0.00001	***

GEXP	-4.21897e-07	6.22043e-08	-6.7824	<0.00001	***
EXRT	-0.00044423	0.000225427	-1.9706	0.05100	*
FDI	-2.72498e-07	1.40741e-07	-1.9362	0.05512	*

Statistics based on the rho-differenced data:

Mean dependent var	0.012812	S.D. dependent var	0.098071
Sum squared resid	0.576777	S.E. of regression	0.068201
R-squared	0.538727	Adjusted R-squared	0.516407
F(6, 124)	24.26717	P-value(F)	7.38e-19
rho	0.008678	Durbin-Watson	1.981844