

**IMPACT OF FOREIGN DEBTS ON ECONOMIC DEVELOPMENT IN NIGERIA: AN
ECONOMETRIC APPROACH (1960-2014)**

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ABSTRACT

The access to external finance can be extremely helpful in fostering the developmental process by bridging the investment-savings gap as well as the foreign exchange gap in most developing economies like Nigeria. This study, therefore, econometrically examines the impact of foreign debts on economic development in Nigeria covering 1960 to 2014. The objectives include an assessment of the validity (or otherwise) and implications of both debt overhang and crowding out hypotheses in Nigeria's economy. The study employed Augmented Dickey-Fuller unit root test, Engel-Granger test for co-integration and Dynamic OLS techniques. The study found that both assumptions are valid in Nigeria; thus, recommend that the Nigeria Debt Management Office (DMO) should explore debt-equity swap in the management of the country's foreign debt which could improve the country's defense against dangers of the economic cycle.

INTRODUCTION

Economic development is a multivariate concept with no single satisfactory definition. It is the process of transforming low-income economies to modern or industrial economies. This occurs when households, private firms, and government have the chance to grow their capacities and actively contribute to the economy. Economic development in the classical era is regarded as an increase in the absolute size of yearly production irrespective of the population density, or an increase in the economy's real income over a period of time. Hence, actual economic development requires the removal of major sources of unfreedom, poverty, tyranny, poor economic opportunities, systematic social deprivation, and neglect of infrastructures with a positive change in per capita income over time (Sen, 1999).

However, sustainable economic growth and development is a challenge for most governments due to decline in funds required to finance their budget and operations. These funds range from taxes, minting of currency, the sale of government securities, grants, and aids. Thus, to supplement the available funds, the government turns to borrowing either from domestic or foreign sources. Borrowing from domestic sources is referred to as internal debt while external sources are called foreign debt.

The external debts are debts owed by a country to other countries or institutions outside her territory whose repayment is carried out in foreign currency. It can also be regarded as the long-term debt owed and guaranteed by public bodies in the debtor's country which includes obligations of central and local (or municipal) government of publicly or state-owned enterprises (Ajibola, 2008). Whereas internal borrowing only transfers resources within the economy, that is, resources only changes hands while the quality of money remains largely the same. External borrowing raises a country's access to injection of resources into the circular flow of income. The access to external finance can be extremely helpful in fostering the developmental process by bridging the investment-savings gap as well as the foreign exchange gap in most developing economies like Nigeria. But, the debtor's Central Bank cannot mint the currencies necessary to repay external debt. Thus, external borrowing is usually accompanied with exposures that could result in

“debt crises” during periods of fiscal indiscipline. In Nigeria, foreign debt has been on the rise even after the debt relief granted by Paris and London Club creditors in 2005, which reduce the country’s external debt by 83.25 percent from ₦2.695 trillion in 2005 to ₦0.451 trillion in 2006 but rose to ₦1.631 trillion in 2014 (CBN Statistical Bulletin, 2014). Nonetheless, there is yet to be any significant economic progress instead, the debt portfolio has been on the increase with external debt service payment of ₦6.6 billion, ₦8.3 billion and ₦9.13 billion in 2012, 2013 and 2014 respectively (WDI, 2015). This constrained the economy from undertaking larger volume of domestic investment needed to speed up the rate of economic growth and development. Also, the funds used in debt service could be utilized in other sectors of the economy such as manufacturing, education, health and power supply. Borrowing creates a burden if the proceeds are not efficiently utilized to yield financial and real assets that can facilitate its repayment, liquidation of the debt and economic development of the indebted country.

LITERATURE REVIEW

The theoretical and empirical channels through which external debt affects economic growth have been researched by various scholars. The traditional neo-classical models posit that the relation between debt and growth is positive but this link was flawed by the unrealistic assumption of perfect capital mobility. Therefore, the general argument is that a debt burden encroaches on the economic growth rate. This contrary effect works through diverse channels, related to the stock of debt, interest payment, and exchange rate. This argument also to be used on the debt-poverty nexus, since debt service expense shrinks total expenditure on poverty alleviation programs, healthcare intervention, education services and provision of basic infrastructures. Furthermore, the effect of the drift effect is not only related to public investment but also private investors because a crowd in public investment is likely to cut spending on basic infrastructures like electricity and road network which are required for improved private sector investment in developing economies like Nigeria.

Theoretical Review

Concerning the consequences of a large stock of foreign debt on economic performance, economic literature highlighted debt overhang and dependency theory as major theoretical channels through which external debt relate to economic growth and development.

Debt overhang state that when the stock of debt is too large, the expected interest payments are an increasing function of output. Thus, investments decrease because their returns will be taxed away by foreign creditors and the pace of economic growth slowed down. In such scenario, the indebted country shares partially in any rise in output and exports since a fraction of that increase will be used to augment investment and repayment. As a result, the portion of debt outstanding becomes more likely to be repaid. When the effect is robust, the debtor nation is said to be on the “wrong side” of the Laffer curve. In this case, the debt Laffer curve refers to the relationship between the amount of debt repayment and the size of the debt (Sachs, 1988). However, the idea of “debt laffer curve” also implies that there is a limit at which debt accumulation could stimulate growth (Pattillo, Ricci & Poirson, 2002; Elbadawi et al., 1997; Krugman, 1989).

The dependency theory, on the other hand, postulates that investment is a function of savings and that in developing countries, the level of domestic savings is not sufficient to fund the needed investment required for economic development. Therefore, it is logical to seek the use of complementary external goods and services. However, the acquisition of external resources depends on the connection between internal savings, foreign funds, investment and growth in the economy. A guiding principle on when to borrow state that borrows abroad also far as the funds acquired generates a rate of return that is higher than the cost of borrowed foreign funds (Ajayi & Khan, 2000). Saving-Investment gap exists if the available national savings is less than the level necessary to achieve the target economic growth rate. Similarly, if the maximum import required to attain the growth target is higher than the maximum possible level of export, then these are export-import of origin exchange gap. The dependency theory seeks to establish the factors that have driven or contributed to the development of the developing economies. This concept is based on the postulation that resources flow from a “periphery” of deprived and underdeveloped countries to a “core” of wealthy states, enriching the latter at the expense of the former. It is a central contention and standpoint of dependency theory that underdeveloped countries are impoverished and developed ones enriched by the way underdeveloped economies are integrated into the “World system” (Todaro, 2003).

Empirical Review

Ajayi and Oke (2012) examined the impact of the external debt burden on economic growth and development of Nigeria. They confirmed the debt burden had an inverse impact on the per capita income of the nation.

High level of foreign debt induced the devaluation of the country’s currency, the rise in the retrenchment of workers, incessant industrial strike and undeveloped educational system.

Sanni, Oseni & Gbadebo (2012) examined whether there is a relationship between 2005 Debt cancellation and Foreign Direct Investment (FDI) in Nigeria is curse or blessing. They employed the paired sample t-test statistic to assess the significance of pre and post 2005 debt cancellation. They asserted that the correlation between the pre and post-debt cancellation with FDI is inverse but insignificant.

Kumar and Woo (2010) employed panel data of 36 advanced and emerging countries to assess the effect of high public debt on economic growth in the long run. They found evidence of an inverse relationship between initial debt and succeeding growth rate while controlling for other causes of growth. Also, Folorunso and Felix (2008) comparatively studied the impact of external debt on economic growth in Nigeria and South Africa. Their study confirmed the negative impact of debt (and its servicing requirements) on growth in Nigeria and South Africa. However, Nigeria performed behind South Africa on the application of external loans to promote growth.

Augustine (2007) in his paper explored the effect of a binding external debt-servicing restriction on the sectorial composition of fiscal spending in Africa, where this restriction has habitually been most widespread. Employing Seemingly Unrelated Regression (SUR) to 1975-1994 five-year panel data for 35 countries, the paper discovers that the indirect burden of debt service inversely affects the share of fiscal spending in the social sector, with a similar effect on health and education. Notwithstanding the proof that such a burden might also adversely affect public investment; the harmful implications of debt servicing seem to be principally a social-sector phenomenon. Also, expenditures in the social sector have been increasing even with the structural adjustment programs in the 1980s, before the highly indebted poor countries (HIPC) initiatives that stress social sector expenditure.

Muhtar (2004) also stated that the service of these debt exacts negative impact on economic development. Therefore, debt services encroach on resources needed for socio-economic development and poverty reduction. It also contributed to adverse net resources flow. Moss and Chiang (2003) analyzed other costs of high debts in underdeveloped economies regarding economic growth, policy dynamics, and institutions. They posit that high debt ultimately contributes to adverse policy dynamic as well as impend the sustainability of economic reforms.

METHODOLOGY

This study employed secondary data sourced from Central Bank of Nigeria’s Statistical Bulletin (2014) except those for per capita income and foreign direct income sourced from World Bank Development Index (2015). Then, conduct ADF unit root test, Engel-Granger co-integration test, and Dynamic Ordinary Least Square.

The theoretical framework of this study is the theory of debt overhang following the findings from Wamboye (2012) and Sala-i-Martin et al (2004). This study adopts the model of Wambye (2012) with modification by using per capita income to proxy economic development while external debt service exports ratio and external debt real gross domestic product ratio to capture crowding out and overhang debt effects. The model employed is expressed in equation (i);

$$RPCY_t = f(EDGDP_t^{\mu_1} DSXP_t^{\mu_2} FDI_t^{\mu_3}) \tag{i}$$

Equation (i) was linearized by logging both sides of the equation, and then presented as equation (ii).

$$\ln RPCY_t = \mu_0 + \mu_1 \ln EDGDP_t + \mu_2 \ln DSXP_t + \mu_3 \ln FDI_t + e_t \tag{ii}$$

where; $RPCY_t$ = Real Per Capita Income in period t; $EDGDP_t$ = External Debt GDP ratio in period t; $DSXP_t$ = Debt Service Export ratio in period t; FDI_t = Foreign Direct Investment in period t; e_t = Error term.

μ_0 = Autonomous Real Per Capita Income; μ_{1-3} = Parameter estimates

$\mu_3 > 0$; $\mu_1, \mu_2 < 0$

ANALYSIS AND DISCUSSING OF FINDINGS

Covariance and Correlation Analysis

The covariance and correlation analysis coefficients show no evidence of multicollinearity in the time series employed (see Table 1).

Table 1: Covariance and Correlation Analysis

Covariance	LRPCY	LEDGDP	LDSXP	LFDI
LRPCY	90.66667			
LEDGDP	-49.54545	90.66667		
LDSXP	5.272727	-48.06061	90.66667	
LFDI	21.57576	45.66667	-50.96970	90.66667

Correlation	LRPCY	LEDGDP	LDSXP	LFDI
LRPCY	1.000000			
LEDGDP	-0.446457	1.000000		
LDSXP	0.058155	-0.430080	1.000000	
LFDI	0.237968	0.403676	-0.462166	1.000000

Source: Author's Computation from Eviews 9.0

Unit Root Test

The results of the Augmented Dickey-Fuller(ADF) unit root tests statistics shows that three out of the four variables were stationary at after difference while one was stationary at a level using 5 percent significant level. Table 2 presents the summary of the results of the stationarity test with their orders of integration. All the variables were I (1) series except debt service export ratio which was I(0) series. Since all the variables in the model are not stationary at the same order, the study ,therefore, conducts Engel and Granger (1987) two-step residual-based test for co-integration.

Table 2: ADF Unit Root Test and Order of Integration

Variables	P-value	Remark	Order of Integration
D(InRPCY)	0.0001	Stationary	I(1)
InRPCY	0.884	Non-Stationary	I(0)
InDSXP	0.0004	Stationary	I(0)
D(InEDGDP)	0.0000	Stationary	I(1)
InEDGDP	0.6498	Non-Stationary	I(0)
D(InFDI)	0.0000	Stationary	I(1)
InFDI	0.5626	Non-Stationary	I(0)

Source: Author's Computation from Eviews 9.0

Engel and Granger Co-integration Test

The residual series generated from the model is significant at 5 percent significant level using ADF stationarity test (see Appendix A). This suggests the presence of co-integration in the model, thus, the variables exhibit long run association.

Dynamic Ordinary Least Square (DOLS)

The DOLS was employed to evaluate the long-run impact of the independent variables on the dependent variable since Engel-Granger co-integration test confirm the present of long run association of the variables. Stock-Watson DOLS model is specified as follows (Gutierrez, 2010);

$$Z_t = \alpha_0 + \alpha Y + \sum_{p=-q}^a d_j \Delta Y_{t-j} + u_t$$

Z_t = dependent variable

Y = matrix of explanatory variables

α = co-integrating vector which represents cumulative long-run multipliers or the long-run effect of a change in Y on Z.

a = lag length

q = lead length → →

The purpose of lag and lead terms included in DOLS regression was to make its stochastic error term independent of all past innovations in stochastic regressors.

The summary of Dynamic OLS estimation result presented in Table 3 reveals that all the variables are significant at 5 percent and confirm with expected signs. The adjusted R-square of 0.929 indicated that the explanatory variables (DSXP, EDGDP and FDI) explained 92.9 percent changes in per capita income in the long run and other explanatory variables not modeled explained 7.1 percent. Thus, the goodness of fit of this model is adequate with high predictive power.

Furthermore, 1 percent increase in external debt-GDP ratio induces 0.19 percent decline in per capita income in the long run (see Table 3). The scenario suggests that reduction in external debt productivity burden would enhance Nigeria’s economic growth and development. Otherwise, high foreign debt can raise internal debt, owing to the fact that share of domestic borrowing goes into the servicing of the external debt obligation, interest, and capital repayment. This finding confirmed the overhang hypothesis in Nigeria as it is common in most developing economies (Ajayi&Oke, 2012; Folorunso& Felix, 2008; Muhtar, 2004; Iyoha, 1999).

Again, 1 percent increase in external debt service export ratio induces 0.10 percent fall in per capita income in the long run (see Table 3). This implies that as more quantity of incomes from export leaves the economy through foreign debt servicing; the saving-investment gap would be more expanded and economic advance becomes more challenging. However, the negative and significant coefficient of the external debt export further confirmed the presence crowding effects in Nigeria as in most developing economies in line with other studies (Asogwa &Chetachukwu, 2013; Paiko, 2012; Obi &Abu, 2009; Emran &Farazi, 2009).

Also, 1 percent rise in foreign direct investment induces 0.21 percent increase in per capita income in the long run, which suggests that positive net inflow into Nigeria can trigger substantial economic development (Aminu, Ahmadu&Salihu, 2013).

Table 3: Summary of DOLS Results

Variables	Coefficient	P-value	Expected Sign
Dependent:			
InRPCY			
Explanatory:			
InEDGDP	-0.1806	0.0003	Negative
InDSXP	-0.1016	0.0197	Negative
InFDI	0.2187	0.0004	Positive
C	8.4995	0.0000	Positive
R-square	0.979		
Adjusted R-square	0.929		

Source: Author’s Computation from Eviews 9.0

CONCLUSION AND RECOMMENDATIONS

This study concludes that both overhang and crowding out hypotheses are valid in Nigeria, and positive net capital inflow (foreign direct investment) can foster economic development in the country. Therefore, the real cost of high external debt includes the depression of investment, rising unemployment and increasing jobless economic growth in the country.

This study recommends that fiscal discipline is required in Nigeria not only to reverse the excessive high external debt but to ensure that foreign debts are productively utilized. The Nigeria Debt Management Office (DMO) should explore debt-equity swap in the management of the country’s foreign debt. Debt-equity swaps encompass a change in the composition of Nigeria’s net foreign accounts where interest payments are replaced with profit remittances, principal repayments by depreciation reserves and potential investment. Thus, part of the external imbalance moves from “debt accounts” to “Foreign Direct Investment accounts” in the balance of payments. These could improve the country’s defense against dangers of the economic cycle. Also, the DMO should place restrictions on external borrowings by the federal and state governments except in cases where such loans are explicitly acknowledged to be for viable projects like Agriculture, manufacturing plants, refineries, road construction etc.

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APPENDIX

A. Engel-Granger Co-integration Test

Dependent Variable: LRPCY

Method: Least Squares

Sample (adjusted): 1970 2014
Included observations: 33 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LEDGDP	-0.127565	0.016577	-7.695346	0.0000
LDSXP	-0.029028	0.015706	-1.848236	0.0748
LFDI	0.184574	0.023864	7.734287	0.0000
C	9.055474	0.472548	19.16308	0.0000
R-squared	0.747503	Mean dependent var		12.41389
Adjusted R-squared	0.721382	S.D. dependent var		0.243725
S.E. of regression	0.128649	Akaike info criterion		-1.150253
Sum squared resid	0.479963	Schwarz criterion		-0.968858
Log likelihood	22.97917	Hannan-Quinn criteria		-1.089219
F-statistic	28.61757	Durbin-Watson stat		0.424485
Prob(F-statistic)	0.000000			

Null Hypothesis: RPCY_COINTEGRATE has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=9)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-3.181901	0.0282
Test critical values:		
1% level	-3.596616	
5% level	-2.933158	
10% level	-2.604867	

*MacKinnon (1996) one-sided p-values.

B DOLS Estimation Result

Dependent Variable: LRPCY
Method: Dynamic Least Squares (DOLS)
Sample (adjusted): 1972 2013
Included observations: 18 after adjustments
Cointegrating equation deterministic: C
Fixed leads and lags specification (lead=1, lag=1)
Ordinary (static) least squares standard errors, covariance, and long-run variance estimate

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LEDGDP	-0.190595	0.023201	-8.214854	0.0004
LDSXP	-0.101617	0.030066	-3.379766	0.0197
LFDI	0.218664	0.025460	8.588629	0.0004
C	8.499454	0.571452	14.87343	0.0000
R-squared	0.979247	Mean dependent var		12.36238
Adjusted R-squared	0.929441	S.D. dependent var		0.277132
S.E. of regression	0.073615	Sum squared resid		0.027096
Long-run variance	0.005419			