

# External Debt on Human Capital Development in Nigeria (1986-2017)

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**Abstract:** *The study examined the effect of external debt and human capital development in Nigeria. Three research objectives were formulated. Ex-post facto research design was adopted and time series data spanning 32 years (1986-2017) were processed using the models earlier formulated. Ordinary Least Square (OLS) regression technique was used to analyze the data. Secondary sources of data were applied and sourced from Central Bank of Nigeria statistical bulletin, the variables were on human capital index, debt servicing, gross fixed capital formation and external debt. Unit root test, co-integration approach, error correction model, causality test and stability were employed to analyze the included variables. The study found that external debt has a negative and significant effect on human capital development in Nigeria, debt financing has a negative insignificant effect on human capital development, and lastly gross fixed capital formation has positive insignificant effect on human capital development. The study recommends among others that Governments can investment enormously on human capital such as research & development, training and technology to facilitate and increase productivity. Government should consider industrial revolution with the foreign loan. Proper resources utilization is need in education and health sector borrowed fund should be channeled to productivity sector and should not be embezzled as has been the routine in the Nigeria system.*

**Key words:** *External debt, human development, debt servicing. Gross fixed capital formation*

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## 1.0 INTRODUCTION

Nigeria is at this period facing many economic and social challenges which are collectively affecting the economic growth and development (Atif, Syeda & Tabio, 2014). Both the foreign and internal debt and its servicing are the most problems the Nigeria government is facing in contemporary time. Domestic and external borrowing are considered as normal phenomenon in almost all the countries of the world because at the initial stages of

development need capital stock to finance its existing project such as human capital development and infrastructural development (Malik & Siddiqui, 2000). However, external debt increase the economic growth, but it gets accumulated as a certain limit and can cause ripple effect on the host countries (Hassan 1999).

Ezeabsiili, Isu & Mojekwu (2011) maintained that no country can do without borrowing and borrowing occurs as a result of shortage of fund to finance the economy, hence need to borrow to finance the productivity activities. In spite of Nigeria as a mono-product economy the country seem to be reluctant in resource based diversification programme like industrial revolution, human resources development (health & education) and infrastructural development (Egugwu, 2018)

### **Statement of the Problems**

The inability of a developing country like Nigeria to diversified her resources warranted her persistence external debt borrowing, and this has cause several hindrances to the growth of the economy. Several studies were carried out on external debt though with mixed findings (Seetanah, Radachi and Durbarry, 2007; Ogege and Ekpudu, 2010; Egbetunde, 2012; Sallahuddin & Noraznin 2015, (Atif, Syeda & Tabio, 2014) are with varied conclusion. Furthermore the methods applied in their analysis are also divers while time frame for most of them does not bear current data. Also, the period does not included updated literature even the extent studies done in Nigeria like Asogwa, 2005; Blavy, 2006; Kogi State University, Nigeria, observation; Adofu and Abula, 2010; Obiwuru, Okwu and Ekezie, 2013 produced conflicting conclusion. The methodologies adopted were not robust enough to cross-examine research data and most of the work lacked theoretical framework. Against this backdrop the presents study improves the previous studies on the following ground, firstly, this study uses an updated literature on the impact of external debt on human capital development Secondly, it is carried out in Nigeria to determine the true situation in Nigeria since most studied come with varied conclusion. Thirdly, the study sought to adopt ECM to examine the effect of external debt on the human capital development in Nigeria.

### **Objectives of the Study**

The main objective of this study is to examine the effect of external debt on human capital development in Nigeria from. Specifically the study seeks to:

- i. Examine the effect of external debt on human capital development in Nigeria
- ii. Determine the effect of debt serving on human capital development in Nigeria
- iii. Assess the effect of gross fixed capital formation on human capital development in Nigeria

### **Scope of the Study**

The research work intends to examine the relationship between the external debt and human capital development in Nigeria of Nigeria the researchers work covers the period of 32 years from (1986-2017). The included variables were on human capital development, external debt, debt serving and gross fixed capital formation.

## **2.0 REVIEW OF RELATED LITERATURE**

External debt is defined as a financial commitment that link one party, the debtor country to another, the lender country; it mostly denotes incurred debt which are repayable in denominations other than the debtor nation's currency (Ajab & Audu,2006). The major consideration at the time of going into contract for a foreign loan is that one should take cognizance of the fact that profit on investment is by far more than the cost of borrowing.

Ajayi and Khan (2000) opined that by this consideration the borrower will be raising capacity and growing productivity using foreign savings through external debt (McKinnon, 1964). The abundance and availability of low priced international loans in 1970s lead to the proliferation of external debts among the third world countries (Ajab & Audu, 2006). This was in addition to lack of domestic savings, high current account deficit, sharp decline in terms of trade and the crude oil price changes in 1973/74 and 1978/79 plus the rise in public spending of especially SSA countries as a result of increases in the prices of imports during the early 1970s. These contributed immensely in developing countries opting for importation of capital to augment domestic resources (Were, 2001; Suma, 2007). External debt is therefore considered common occurrence for developing nations in their initial stage of development aiming at smoothing and boosting their capital formation process which is a sine qua non to investment in particular and economic growth in general (Chenery & Strout, 1966).

### **Theoretical Review**

#### **Ricardian Equivalence Proposition**

This work is anchored on Ricardian view of government debt. In the Ricardian view, government debt is considered equivalent to future taxes. According to the Ricardian equivalence proposition, consumers are forward looking and so internalize the government's budget constraint when making their consumption decisions. So a debt-financed tax cut does not produce aggregate wealth effects. The increase in government debt does not affect consumption and hence, it does not change aggregate demand. The rational consumer facing current deficits saves for future rise in taxes and consequently total savings in the economy are not affected. A decrease in government dis-saving is matched by increase in private savings. In view of unchanged total savings, investment and interest rates are also unaffected and so is the national income. This theorem is used as an argument against tax cuts and spending increases aimed to boost aggregate demand.

### **Empirical Review**

Egungwu (2018) examine the impact of increase in external debt stock and its servicing on human capital development. Ex-post facto research design was adopted and time series data spanning 30 years (1986-2015) were processed using the models earlier formulated. Ordinary Least Square (OLS) regression technique was used to test the hypotheses. The study found that both external debt stock and external debt servicing had significant negative effect on human capital development; external debt stock borrowed from Paris club and multilateral creditors had insignificant negative effect.

Muhammad Sallahuddin & Nor (2016) aimed at examining the impact of external debt to the growth and development of capital formation in Nigeria. Time series data was utilized for a period from 1980 to 2013, employing the Autoregressive Distributed Lag (ARDL) modeling... The impact of external debt on capital formation has been established to be negative and statistically significant while savings came out as the only variable with a bidirectional causal relationship amongst the variables. Interest rate was found to be statistically significant even though weak.

Adeboye & Adekoya, (2018) examined the impact of foreign borrowing on the economic growth of the developing nations using Nigeria as a case study. Time series data from 1985 and 2015 were sourced from Central Bank of Nigeria Statistical Bulletin. The study revealed that there

is significant relationship between economic growth, exports, capital investment and debt service payment but external debt and exchange rate have a significant inverse relationship with economic growth.

Sulaiman and Azeez (2012) study the effect of external debt on the economic growth of Nigeria using gross domestic product as the endogenous variable measuring economic growth as a function of ratio of external debt to export, inflation and exchange rate proxy as the exogenous variable. Data were gathered covering 1970-2010. The result showed that external debt has contributed positively to Nigeria economy.

Udeh, Ugwu & Onwuka (2016) study external debt and economic growth: the Nigeria experience from 1980-2013. The study used a secondary data and analyzed the data using ordinary least square. The study discovered that External Debt had a positive relationship with Gross Domestic Product at short run, but a negative relationship at long run.

Mba, Umunna & Agu (2016) used the ARDL bound testing approach to investigate the impact of external debt on economic growth in Nigeria and found the existence of a long run relationship among the variables and specifically that external debt impacts negatively on output.

Ijirshar, Joseph and Godoo (2016) examined the relationship between external debt and economic growth in Nigeria using VEC model and found that external debt stock impacted positively on growth while external debt servicing contributed negatively to growth.

Adeniran, Azeez & Aremu (2016) used the Vector Auto-Regression(VAR) approach to examine the relationship between external debt and economic growth in Nigeria and found that external debt impacts negatively on real GDP per capita growth. A unidirectional causation was also found to exist from real GDP to external debt stock and from external debt service payment to real GDP.

Okoye Modebe Adedayo, & Evbuomwan (2018) determine the effect of external debt on economic growth in Nigeria from 1986-2016. Specifically, the study examines whether external borrowings and its major determinants like exchange rate, gross fixed capital formation and inflation rate have supported the growth of the Nigerian economy. The result shows evidence of significant positive correlation between economic growth and the explanatory variables namely external debt, exchange rate and inflation rate.

Ezeabasili et al (2011) investigated the effects of external debt on the growth of the Nigerian economy using annual data over the period 1975-2006, employing the methodology of econometric analysis. The error correction estimate shows that external debt is negatively related to economic growth in Nigeria.

Amaefule, & Umeaka, (2016) evaluated the effects of government's borrowings on infrastructural development in Nigeria. Infrastructural development has been proxied with capital spending of the federal government of Nigeria. Data were analyzed using the Ordinary Least Square (OLS). The study further reveals that a positive relationship exists between federal government capital expenditure and domestic debt; while no significant relationship between capital expenditure and foreign debt was found.

### **3.0 METHOD**

#### **Research Design**

The study adopted ex-post facto research design. The importance of ex-post facto research is that it is a realistic approach in solving business and social science problems which involve gathering records of past events

### **Nature and Sources of Data**

The study used secondary data sourced from financial publications such as, Central Bank of Nigeria, Statistical Bulletin, 2018

### **Model Specification**

The model used for the study was the adaptation and modification of the work of Egumwu (2018) who studied the effect of external debt on human capital development in Nigeria, pose his model as  $HDI=f(ExtD+ExR+InfR)$

#### **Where:**

HDI = Human Development Index

ExtD = External debt stock

ExR = Exchange Rate

InfR = Inflation Rate

### **The model was adapted and modified to enable us look at the topic from another dimension**

$HDI= f (EXD, DSV, GFCF, )$

#### **Where:**

HDI = Human development index

EXD=External debt

DSV=Debt serving

GFCF = Gross fixed capital formation

$\mu$ = error term

The above equation can be put in an econometric form as;

$HDI=b_0+b_1 EXD+ b_2 DSV+b_3 GFCF+\mu$

#### **Where:**

$\beta_0$  and  $\mu$  are the constant and error term respectively while  $\beta_1$ ,  $\beta_2$ , and  $\beta_3$  are the coefficients of external debt, debt serving and gross fixed capital formation respectively .

### **Method of Data Analysis**

The study employed ordinary least square (OLS) method of estimation to establish the importance of the independent variables on the dependents variables. The (OLS) is the most efficient method because of the "Best Linear Unbiased Estimator" (BLUE) properties .the result is always satisfactory and simple to comprehend. The model equation will be estimated using a variety of analytical tools, including the unit root test and co-integration test.

### **4.0 PRESENTATION AND ANALYSIS OF DATA**

The method used was the Ordinary Least Square (OLS) regression technique, this method was chosen over others because of its "BLUE" properties "Best Linear unbiased Estimates, it is also efficient and consistent, When compared with other linear unbiased estimator. The data used in the analysis is presented in the appendix.

#### 4.1 Unit Root Test

**Table .1 result of the unit root test**

Variable	ADF statistic	Integration	P.P statistic	Integration
HDI	-7.329085	1(1)	-6.950566	1(1)
EXD	-4.000981	1(1)	-4.015509	1(1)
GFCF	-5.135053	1(1)	-5.162124	1(1)
DSV	-7.507182	1(1)	-23.69736	1(1)

**Source:** Author's computation using E-view version 9.1

It is customary to determine the stationarity properties of time series before using them for formal empirical analysis. To determine the Order of integration of the chosen variables, the augmented dickey-fuller (ADF) and Philip-Perron (PP) unit root tests have been carried out on level and differences of the included variables. The tests were performed assuming intercept and no trend in both ADF and PP unit root specification. The result shows that all the variables are stationary at 1st differences. The results are reported in the tables .1 above

#### 4.2 Co-Integration Test

The unit root test carried out earlier indicates that all our chosen variables are integrated of the same order I(1). Therefore, following the Johnson co-integration approach, the first condition for co-integration is that variables of interest are integrated of the same order, thus suspect the existence of long run relationship between our variables. Tables 2 below present the Johansen co-integration test. This test was performed allowing lag interval from 1 to 2 suggested by both AIC and SIC for optimal lag length. The null hypotheses underlying this test is that  $r=0$ , against alternative that  $r > 0, 1, 2, \text{ and } 3$ . The null hypothesis of no co-integration among the variables of interest is rejected at 5% level of significant since that value of both trace statistics and max-Eigen statistics do not lead to the rejection of the null hypothesis of  $r \leq 5$ . In other word both trace test and Max-Eigen test indicates the existence of 4 co-integrating equation at 5% level of significance. Thus there is evidence of a long run relationship among the chosen variables.

**Table 2 co-integration result table**

Unrestricted co-integration rank test (trace)

H0	H1	Trace statistics	0.05	Max-Eigen	0.05
$r=0^*$	$r=0$	101.3669	47.85613	49.87452	27.58434
$r \leq 1^*$	$r > 1$	51.49236	29.79707	29.46308	21.13162
$r \leq 2^*$	$r > 2$	22.02927	15.49471	16.25369	14.26460
$r \leq 3^*$	$r > 3$	5.775582	3.841466	5.775582	3.841466

**Source:** Author's computation using E-view version 9.1

NB\* implies rejection of the null hypothesis (Ho) of at 5% level of significance. Both the trace test and max-eigen values test indicates 4 co-integration equation at 5%

### 4.3 Presentation of the Regression Result

The full part of our regression result for this analysis is attached as an appendix to this study. However, the diagnostic tests or some key statistics or the variable that needs to be interpreted is shown below.

Table 3. Regression Result

Variable	Coefficient	Std error	T-test	Prob
C	0.432150	0.116632	3.705248	0.0010
LEXD	-0.207917	0.009780	-3.809582	0.0055
LDSV	-0.000547	0.004067	-0.134490	0.3141
LGFCF	0.007550	0.006939	1.088085	0.2865
ECM(-1)	-0.752452	0.142090	-5.295617	0.0000

**Source:** Author's computation using E-view version 9.1

R- Square	0.546479
F- Statistics	7.82307
Prob (F- statistic)	0.00000
Durbin-Watson	1.746121

### 4.4 Interpretation of the Regression Result

From the result in table 4.3 above,  $R^2 = 0.54\%$ , it means that our independent variables explained about 89% of the total variation in the dependent variables leaving the 46% which will be accounted for by other variables outside the model as captured by the error term. The adjusted  $R^2$  is 47% which means that even an adjustment in the explanatory variables, they can still explain about 47% of the change in the dependent variables.

The F-statistics is used to test if or not the model has a significant relationship between the dependent and independent variables in the regression model. From table 3 the calculated value of F is 7.8230, while its probability is 0.000278 since the probability value is less than 0.05 desired 5% level of significance, we accept and state that there is a significant relationship between the variance of the estimates and that of the independent variables. This means that the parameters are statistically significant in explaining the relationship between the dependent variable and independent variables.

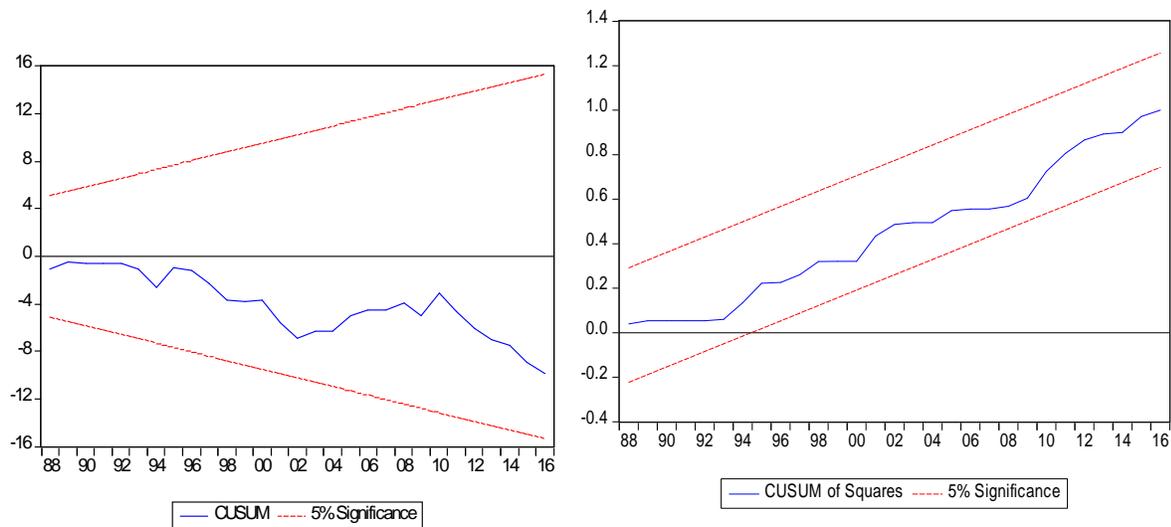
The a priori expectation is used to determine by the existing theories and this indicates the signs and magnitude of the variables. From our regression it is observed that external debt has a negative sign, given us value as -0.20791, this implies that decrease in external debt increases the HDI by 0.20%. This conforms to our a priori expectation. Meanwhile debt servicing has a negative sign given its value as 0.000547, this implies that decrease in debt servicing will decrease the HDI by 0.5%, this suggest that it conform to our theoretical expectation. However, gross fixed capital formation has a negative sign, given its value as -0.007550, this suggest that a unit increase in -0007550 increase the HDI by 7% this further suggest that it does not conform to our theoretical expectation.

The t-test is used to measure the individual statistical significance of our explanatory parameter in the model. From table 3 above external debts is -3809582. This is

statistically significant this suggest that external debt has negatively influence human capital development. Debt severing is 0.134490, this implies that it is statistically insignificant at, this further suggest that it contribute insignificantly human development index. Gross fixed capital formation is -0.088085, this implies its statistically insignificant and has not contributed significant to the human capital index.

The Durbin-Watson (DW) test for autocorrelation will be used to test for the presence of first order autocorrelation in the model when the value of DW is closer and a little above 1.746121, it means the presence of autocorrelation among the explanatory variables. From the table 4.5 above our DW result is (1.7) this implies the absence of autocorrelation hence our variables can be used for predictive purposes.

Finally, the negative coefficient of the ECM (-1) confirms that the variables in the model are co-integrated and indicates a stable long-run equilibrium relationship between the variables. It shows coefficient of the ECM as -0.752452 and is the speed of adjustment and it shows that about 75% of the previous year's shocks adjust the equilibrium in the current years. The stability test enables us to predict the dependent variables in a regression with a reasonable level of precision given the independent variables used in the analysis.



Therefore, the test is carried out using the cumulative sum and cumulative sum of squares. The result shows that our model is dynamically stable because the fitted lines fall within the dotted lines for critical value of 5%.

#### **4.5 Causality Tests**

It has been stated earlier that the existence of long-run relationship among variables entails that causality run in at least one direction. The granger causality runs from LDSV to HDI. This shows a unidirectional relationship. Unidirectional relationship runs from LEXD to LDSV. It was also observed that unidirectional relationship run from GFCF to HDI. It was also interesting that unidirectional relationship occurred between LEXD and LDSV.

The granger causality tests are reported in table 4 below.

Pairwise Granger Causality Tests  
Date: 11/07/18 Time: 08:15  
Sample: 1986 2017  
Lags: 3

Null Hypothesis:	Obs	F-Statistic	Prob.
LEXD does not Granger Cause HDI	29	1.73571	0.1890
HDI does not Granger Cause LEXD		0.46544	0.7093
LDSV does not Granger Cause HDI	29	3.96358	0.0212
HDI does not Granger Cause LDSV		0.56277	0.6453
LGFCF does not Granger Cause HDI	29	4.66417	0.0114
HDI does not Granger Cause LGFCF		0.24664	0.8628
LDSV does not Granger Cause LEXD	29	0.48023	0.6993
LEXD does not Granger Cause LDSV		4.27986	0.0160
LGFCF does not Granger Cause LEXD	29	2.55808	0.0812
LEXD does not Granger Cause LGFCF		0.51479	0.6764
LGFCF does not Granger Cause LDSV	29	0.98775	0.4167
LDSV does not Granger Cause LGFCF		2.55853	0.0811

## 5.0 CONCLUSION AND RECOMMENDATION

In the literature, majority of the study explored focus more on the effect of external debt on the Nigeria economic growth. A few numbers of studies has been conducted to check the effect of external debt on human capital development in Nigeria. Nigeria government has be spending so much on debt servicing which in turns affected the growth of human capital development in Nigeria, high level of borrowed debt both domestic and foreign over this years and its serving has becomes a burring issues in Nigeria today. This paper amined to check the effect of external debt on human capital development in Nigeria by taking three independent variables such external debt, debt servicing and gross fixed capital formation on the last 32 years. The ECM techniques has be applied and results show that external debt has a negative and significant effect on human capital development in Nigeria, debt financing has a negative insignificant effect on human capital development, lastly gross fixed capital formation has positive insignificant effect on human capital development Over the last three years the government of the day has resort to foreign borrowing without any corresponding investment there by putting the economy in more debt. The government of Nigeria has been spending majority of its revenue for the non-development expenditure which cause fiscal deficit.

Nigeria is blessed with affluent human capital which can be used for the self-dependent. Governments can investment enormously on human capital such as research & development, training and technology to facilitate and increase productivity. Government should consider industrial revolution with the foreign loan. Proper resources civilization is

need In education and health sector borrowed fund should be channeled to productivity sector and should not be embezzled as has been the routine in the Nigeria system.

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