

## **EXTERNAL DEBT AND ECONOMIC GROWTH IN SUB-SAHARA AFRICA**

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### **Abstract**

This study empirically reviewed the effect of external debt on the economic growth of Nigeria and South Africa for the period covering 2002 to 2017. The study employed time series data collected from CBN statistical bulletin and CIA factbook. Descriptive statistics and multiple linear regression of Ordinary Least Square (OLS) was applied in analyzing the data. The results show that external debt and external reserve have positive effect on economic growth of both Nigeria and South Africa nations. Whereas external debt service cost has negative effect on GDP of the both nations of Sub Sahara Africa. The study recommends among other things that nations of Sub Sahara Africa should plan for better and productive activities before seeking for the foreign loan to execute the projects.

**Keywords: External debt, Investment, External debt service cost, Developing countries,**

### **1. Introduction**

External debt arguments the insufficient financing to developing countries and boosts development projects in periods of deficit financing. Ezeabasili, Hamilton and Mojekwu (2011), opined that countries borrow as a result of their inability to generate enough domestic savings to carry out productive activities. In order words, developing countries borrow funds from either internally or externally to stimulate economic growth by investing in infrastructure and productive ventures. Umaru, Hamidu and Musa (2013) posits that consistent investment in infrastructure will facilitate the growth on Gross Domestic Product which will culminate to economic development when it persists and its vigorously pursued by all the less developed countries.

As a means of stimulating economic growth of Sub-Sahara Africa, and in particular reference to Nigeria and South Africa have extensively explored this avenue of borrowing from foreign nations to support the financial inadequacies confronting them as developing nations. At the end of December 2017, Nigeria's external debt had rose to \$18.913 billion US dollar amounting to (N5.787 trillion) from \$15.352 billion in the third quarter of 2017. The country's external debt stood at \$9.464 billion in December 2014, and observed a sharp rise to \$10.718 billion in December 2015, and \$11.436 billion by December 2016, from which it rose to \$18.913 billion in 2017, representing 40% increase in external debt. Debt Management Office (2018) reports that Nigeria's external debt averaged \$7.806 billion from 2008 to 2017, hitting all time high external debt profile of \$18.913 billion in 2017 and the lowest external debt record of \$3.627 billion in 2008 fiscal year.

The case is not different with South Africa as its external debt rose to \$173.319 billion at December 2017 from \$ 144.8 billion in December 2016, representing 17% increase in its external debt profile. South Africa's external debt averaged \$95.369 billion within 2002 to 2017 fiscal year hitting all time high of \$173.319 billion in 2017 and had the lowest external debt record of \$33.262 billion in 2002 fiscal year. The external debt of South Africa accounted for 49.6% of the country's nominal Gross Domestic Product in 2017 as against the ratio of 48.2% in 2016 and had the lowest ratio of external debt to GDP of 18.9% in December 2005 (ceicdata.com. 2018).

Nakatami and Herera (2007) maintained that external debt accumulation can be a self-perpetuating mechanism of poverty aggravation, work over-exploitation and constraint on development in developing economies. In addition to the accumulated funds outsourced by these nations, Ayadi and Ayadi (2008) directed that servicing requirements increases accumulated debts, in that case noting the danger that surrounds high external debt pile ups by developing nations. On the contrary, Sulaiman and Azeez (2012) say that accumulation of external debt should not signify slow economic growth and, Were (2001) maintained that it is the country's inability to meet its debt obligation alongside lack of information on the nature, structure and magnitude of external debt that slows economic growth. Pertinently, where the external fund is used on current consumptions and not on capital projects, the debt will definitely not impact on the economic growth. Aside the authors findings which are in contradiction with one another, its only Ayadi and Ayadi (2008) that compared the effect of external debt on the two leading economies in Sub Sahara Africa (Nigeria and South Africa). This study also intends to use updated data to investigate comparatively the external debt impact on Nigeria and South Africa. The objectives of this study include the following

1. To ascertain the effect of external debt on the economic growth of Sub-Sahara Africa with emphasis on Nigeria and South Africa,
2. To determine the effect of external debt service cost on the economic growth of Nigeria and South Africa,
3. To determine the effect of external reserve on the economic growth of Nigeria and South Africa.

### **Hypotheses**

1. External debt does not have significant effect on the economic growth in Sub Sahara Africa.
2. External debt service cost has no significant effect on the economic growth of Nigeria and South Africa.
3. External reserve has no significant effect on the economic growth of Nigeria and South Africa.

The study is structured that section two discusses literature review, the subsequent section three presents the method and methodology for the study, analysis and discussion are contained in section four while conclusion and recommendations are presented in the fifth section.

### **2. Literature Review**

Ayadi and Ayadi (2008) made a comparative study of the impact of external debt on the economic growth between Nigeria and South Africa. Annual time series data was collected for the period 1980 to 2007. Ordinary Least Square and Generalized Least Square estimation technique were employed, external debt and external debt servicing is found to be negatively impacted on Nigerian and South African economy.

Ukpe, Umeh and Asogwa (2017) examined the effect of private investment and public external debt on agricultural growth in Nigeria from 1980 to 2016. They used fully modified Ordinary Least Square estimation technique, and the result show that 65% of variation in agricultural output was explained by public external debt, foreign direct investment, domestic private investment and labour. Again a unit increase in public external debt and domestic private investment decrease agricultural growth by 0.315 metric tons and 0.48 metric tons respectively. They recommend that specialized development agencies should be set up for implementing and evaluating government policies on foreign debts and domestic private investment.

Babu, Kiprop, Kalio and Gisore (2014) applied a panel fixed effect model on an annual data from 1970 to 2010 to investigate the effect of external debt and economic growth in the East Africa community (EAC). The stationarity of the data was tested using Lin-Chu test approach and Hausman specification test was used to verify the panel fixed-effect model. The results indicate that external debt has a negative significant effect on per capita GDP growth rate in the EAC member countries. Fatai (2016) conducted a related research on the relationship between economic growth, external debt stock and external debt service payment for 44 years (from 1970-2014). He employed econometric tools of Augmented Dickey Fuller and Philips-Perron unit root test, Vector Correction Models (VECM) and granger Causality technique on the time series data gathered. They found that both short run and long

run relationship exist among all the variables. However the granger causality tests show that there is bidirectional causality between external debt stock and economic growth, external debt service payment and economic growth, and unidirectional granger causality going from external debt stock and external debt service payment.

Korkmaz (2015) investigated the relationship between external debts and economic growth in Turkey using quarterly data covering 2003:01 to 2014:03. Their result show that external borrowing influences economic growth positively in Turkish economy. Ogunmuyiwa (2011) used time series data that span from 1970 to 2007, with the help of econometric analytical technique of augmented Dickey Fuller and VECM, sought to establish whether external debt promoted economic growth in Nigeria. The study reveal that causation between external debt and economic growth could not be established in the Nigerian content also causation between debt and economic growth in Nigeria is weak and insignificant. Therefore changes in GDP cannot be predicted with the changes in external debt.

Umaru, Hamidu and Musa (2013) empirically looked into the impact of external debt and domestic debt on economic growth in Nigeria between 1970 to 2010. Through the application of Ordinary Least Square regression method to establish the impact of debts on the economy, augmented dickey fuller technique for unit root property of the series and granger causality test on GDP, external and domestic debt. The results show that external debt has a negative impact on economic growth while domestic debt has positive impact on economic growth. They recommend that policy makers should manage the debts effectively by channeling them to productive activities (real sector) so as to increase the level of output in Nigeria.

Angahar, Ogwuche and Olalere (2015) empirically analysed the impact of external borrowing on economic performance in Nigeria. Using analytical technique of Ordinary Least Square, Augmented Dickey-fuller unit root test, Jonhansen co-integration and Error Correction Method, they found that external debt burden influences the level of economic activities positively in Nigeria.

Zaman and Arslan (2014) empirically sought to determine the role of external debt on the economic growth of Pakistan. Employing distributive statistics and Ordinary Least Square regression estimation technique on a time series data of 39 years (1972-2010), they revealed that gross capital formation and external debt stock have significant positive effect on Pakistan GDP while gross domestic savings does not have significant impact on GDP of Pakistan.

Safdari and Mehrizi (2011) used vector autoregressive model on a panel data of 1974 to 2007, in investigating the effect of external debt on the economic growth in Iran. The results indicate that external debts and imports have negative effect on Iranian economic growth, while private and public investments have positive effect on the economic growth of the country.

Tarek and Tarek (3013) argued that external debt is not an obstacle to development on North African countries especially when it's contained within reasonable limit and disclosed that it can help countries in North Africa strengthen their growth economically. Aylin and Serap (2015) provided new evidence on old debate of external debt and economic growth. They employed Common Corrected Effect (CCE) Estimator on the panel data that span from 1985 to 2013, and found that a negative linear impact of external indebtedness on economic growth.

Ahmet Uzun, Kabadayi and Emsen (2012) conducted another study on the impact of external debt on economic growth in transition economies. GDP per capital represents the explained variable and external debt to GNI and Openness for explanatory variable, with the use of autoregressive distributed lag model, they found that external debt has significant positive effect on growth rate in long run and openness has statistically significant positive effect on economic growth of Transitory countries. Naeem, Aklaque and Ashiq (2016) investigated the relationship between external debt and the interest rate on project and economic development in Pakistan. GDP was found to have significant positive impact on external debt in Pakistan and Error Correction Model shows that external debt

and interest payment are negatively skewed where as it is recommended that government should prioritize the need for attaining the external debt which should be demand driven instead of supply driven.

We observed from the reviewed work of the contradictory opinions of the previous authors. For instance, authors like Babu, Kiprop, Kalio and Gisore (2014), Angahar, Ogwuche and Olalere (2015), Zaman and Arslan (2014), Ahmet Uzun, Kabadayi and Emsen (2012), maintain that external debt has positive influence on the Gross Domestic Product of nations while others like Ayadi and Ayadi (2008), Ukpe, Umeh and Asogwa (2017), Babu, Kiprop, Kalio and Gisore (2014), Umaru, Hamidu and Musa (2013), Safdari and Mehrizi (2011), Aylin and Serap (2015), Naeem, Aklaque and Ashiq (2016) found that external debt has negative influence on GDP. Among all the authors reviewed, only Ayadi and Ayadi (2008) compared the effect of external debt on Nigeria and South Africa GDP. This work therefore is set to use the most current data to reassess the influence of foreign debt, comparatively on Nigeria and South Africa.

### **3. Research Methodology**

This research used a time series research design in gathering secondary data for Nigeria and South Africa covering the period 2002 to 2017, from the Central Bank of Nigeria Statistical Bulletin, CIA factbook 2018, and countryeconomy.com. Multiple linear regression of Ordinary Least Square (OLS) method was employed to determine the effect of the explanatory variables on the dependent variable.

#### **Model Specification**

The functional model for the study is stated as follows;

$$GDP = f(EXDSTCK, EXDSERC, EXTRESV) \text{-----}(1)$$

Its regression form is stated as;

$$GDP_t = \beta_0 + \beta_1 EXDSTCK + \beta_2 EXDSPYMT_t + \beta_3 EXTRESV_t + \epsilon_0 \text{-----}(2)$$

Where,

GDP = Gross Domestic Product

EXDSTCK = external Debt Stock

EXDSERC = External Debt Service Cost

EXTRESV = External Reserve

$\beta_0 - \beta_3$  = Coefficient of Regression

$\epsilon_0$  = Error Term

#### 4. Data Analysis and Discussion

##### DESCRIPTIVE STATISTICS

###### TABLE 1

The table 1 in the appendix is the descriptive statistics result for data that relates to gross domestic product and the independent variables. The result indicates that there are wide ranges of variability on the variables over the period of time considered. This is made clear by the minimum and maximum values of the variables in the table above. The mean score, minimum and maximum scores of Nigeria's log of external debt is very close to Nigeria's log of external reserve indicating that external debt is used in boosting external reserve in Nigeria.

###### TABLE 2

The table 2 in the appendix contains the descriptive statistics of the variables of South African external debt, external debt service cost, external reserve and the endogenous variable. The table shows a closer range among mean, maximum, minimum values of gross domestic product, external debt, external debt service cost and external reserve, indicating some degree of stability on how they raise external fund.

###### TABLE 3

The table 3 in the appendix is the skewness and kurtosis test of normality for data that relate to Nigeria. And the result shows that the data were normally distributed as George and Mallery, (2010), Gravetter and Wallnow, (2012) maintain that if the skewness and kurtosis values are between +2 and -2 you can accept it a normal distribution.

###### TABLE 4

The result of skewness and kurtosis of data from South Africa also indicate that the data were normally distributed.

###### TABLE 5

The table indicates that the model is well behaved and is significant at  $\text{Prob} > F = 0.0020$ , the independent variables (i.e. external debt stock, external debt service cost and external reserve) explain 69.6% of the changes in the GDP of Nigerian nation while 30.4% is explained by the error term. Furthermore, the table shows that if every other variable is held constant, that 1% change in external debt stock could cause 70% changes in the Nigerian GDP and as the regression coefficient for external debt service cost is -0.08857, it shows that a percentage change in external debt service cost could generate 8.9% decline change in GDP. The result provides that external debt service cost has an inverse effect on the GDP of Nigeria; this outcome is expected as debt service cost amounts to capital flight, hence a reduction to the productive endeavor of Nigeria. *The result is in conformity with that of Ayadi and Ayadi (2008) that external debt servicing is negatively impacted on Nigerian and South African economy.* The P-statistics of the independent variables show that its only external reserve that has value below 0.05 (5%), thereby accepting the alternate hypothesis that external reserve has significant effect on GDP, whereas external debt and external debt service cost do not have significant effect on GDP. The finding of this study agrees with that of (Korkmaz, 2015; Angahar, Ogwuche & Olalere, 2015; and Zaman & Arslan, 2014) that external debt has positive effect on economic growth of Turkey, Nigeria and Pakistan respectively. Contrarily, the result of Ayadi and Ayadi (2008) that external debt has negative effect on Nigeria and South Africa disagrees with our findings.

**TABLE 6**

Similar to table 5, the probability of F-statistics in table 6 is almost a perfect zero which shows that our model is significant at  $\text{Prob}>F = 0.000$  in explaining the variation in the dependent variable (GDP of South Africa). The  $R^2$  of the model is very high (0.8984) which shows that almost 90% of the changes in the GDP of South Africa can be explained by our model, while the remaining 10% is caused by factors not contained in the model. The result shows that 1% change in external debt stock could cause 5% change in GDP of South Africa if other variables are held constant. This result conforms to the findings of Zaman and Arslan (2014) and Korkmaz, (2015). On the other hand 1% change in external debt service cost could cause 18.8% inverse changes in the GDP. The result also indicated that external debt service cost similar to that of Nigeria has a negative effect on the economic growth of South Africa. The result is in conformity with that of Ayadi and Ayadi (2008) that external debt servicing is negatively impacted on Nigerian and South African economy. External reserve again appears to be the only explanatory variable whose P- statistics is lesser than the critical value of 0.05, therefore the null hypothesis is accepted that external reserve has significant and positive effect on the South African GDP.

### **Discussion**

Both models are significant in explaining what happens to the independent variable. The adjusted  $R^2$  in the table 5 made it understandable that the model could tell 62% of what happens to the GDP of Nigeria, on the other hand, the model more strongly indicates its ability to explain 87% of the changes in South African GDP as shown in table 6. The results indicate that Nigeria has more economic use of their external debts as external debt could account for 70.7% changes in Nigeria GDP if every other variable are held constant. But external debt has a lesser yield on South Africa's GDP as a unit change in external debt can account for 5% changes in GDP. Because of lower yield (5%) of external debt on GDP of South Africa, external debt servicing cost therefore has a higher effect on South Africa GDP as a unit change in external debt service cost will cause 18.8% inverse changes in its GDP, A scenario where servicing cost of accumulated external debt has a 3.6 multiplier value eroding effect on the GDP. This is comparatively higher to that of Nigeria, where a unit change in external debt service cost can cause only 8.8% changes in the Nigeria GDP, this is because external debt makes a better impact or contribution to the GDP and paying debt service charges therefrom will not downplay on the loan or economic activities.

### **5. Conclusion and Recommendations**

The study empirically surveyed the effect of external debt, external debt service cost and economic growth in Nigeria and South Africa. External debt as an instrument to supplement deficit financing in developing nations were by and large discovered to be underutilized in pursuing development projects in South Africa. This however has contributed very infinitesimally to the growth of South Africa economy, a situation that made payment of external debt service cost a big burden to the South Africa economy. Similarly the study has shown that Nigeria made a better application of their external debt towards economic growth as it made good percentage of contribution to the GDP, but indicated that large debt accumulation is a setback and impairment to economic progress. The study therefore recommends that developing nations should strategise for better and most appropriate productive activities before seeking for the relevant external debt for its execution. Attracting foreign loans for political machinations and other non-productive activities will never improve economic height in Sub-Sahara Africa. Moreover, there should be a strict policy implementation that ensures all capital investment projects in Sub-Sahara Africa are adherently completed. African leaders should probe all recent foreign loans to its usage to confirm they were used for productive activities as they were planned for, and that contracts were accordingly completed.

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APPENDIX

**TABLE 1- descriptive statistics for Nigeria variables**

```
. tabstat gdpng extdng extdserng extresng, statistics( mean median max min sd )
stats |      gdpng      extdng      extdse~g      extresng
-----+-----
mean |    11.4563    10.31955    9.227233    10.46438
p50  |    11.54298    10.30094    9.167427    10.52415
max  |    11.75473    10.60095    9.944834    10.72428
min  |    10.97305    9.983057    8.695181    9.873192
sd   |    .2516434    .1802518    .381179    .2590294
```

**TABLE 2 - descriptive statistics for South Africa variables**

```
. tabstat gdpssa extdsa extdsersa extressa, statistics( mean median max min sd )
stats |      gdpssa      extdsa      extdse~a      extressa
-----+-----
mean |    11.45838    10.92905    9.837779    10.48813
p50  |    11.4735    10.96636    9.836013    10.6197
max  |     11.62    11.23876    10.12281    10.7052
min  |    11.064    10.52788    9.59212    9.893028
sd   |    .1417325    .2404277    .1766199    .2762254
```

**TABLE 3- skewness and kurtosis for Nigeria variables**

```
. sktest gdpng extdng extdserng extresng
Skewness/Kurtosis tests for Normality
----- joint -----
Variable |      Obs      Pr (Skewness)      Pr (Kurtosis)      adj chi2(2)      Prob>chi2
-----+-----
gdpng   |      16      0.1313      0.7264      2.77      0.2501
extdng  |      16      0.7824      0.4243      0.77      0.6811
extdserng |      16      0.3637      0.6211      1.18      0.5537
extresng |      16      0.0090      0.1265      7.77      0.0205
```

**Table 4- Skewness/Kurtosis tests for Normality**

```
----- joint -----
Variable |      Obs      Pr (Skewness)      Pr (Kurtosis)      adj chi2(2)      Prob>chi2
-----+-----
gdpssa  |      16      0.0071      0.0324      9.47      0.0088
extdsa  |      16      0.4576      0.0785      3.98      0.1368
extdsersa |      16      0.5726      0.2560      1.82      0.4021
extressa |      16      0.0205      0.3931      5.74      0.0568
```

**TABLE 5- regression analysis - Nigeria**

. regress gdpng extdng extdserng extresng						
Source	SS	df	MS			
Model	.661263522	3	.220421174	Number of obs = 16		
Residual	.288602564	12	.024050214	F( 3, 12) = 9.17		
				Prob > F = 0.0020		
				R-squared = 0.6962		
				Adj R-squared = 0.6202		
				Root MSE = .15508		
-----						
gdpng	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
extdng	.7074587	.3393863	2.08	0.059	-.0320005	1.446918
extdserng	-.0885702	.1057131	-0.84	0.418	-.3188993	.1417589
extresng	1.094592	.2358259	4.64	0.001	.5807719	1.608413
_cons	-6.481334	5.658648	-1.15	0.274	-18.81047	5.847801

**TABLE 6 - regression analysis South Africa**

. regress gdpssa extdsa extdsersa expressa						
Source	SS	df	MS			
Model	.270711197	3	.090237066	Number of obs = 16		
Residual	.030610293	12	.002550858	F( 3, 12) = 35.38		
				Prob > F = 0.0000		
				R-squared = 0.8984		
				Adj R-squared = 0.8730		
				Root MSE = .05051		
-----						
gdpssa	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
extdsa	.0511208	.1931062	0.26	0.796	-.3696214	.4718629
extdsersa	-.1877826	.1353327	-1.39	0.190	-.4826471	.107082
expressa	.520401	.132896	3.92	0.002	.2308454	.8099566
_cons	7.289001	.7264794	10.03	0.000	5.706139	8.871864