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# External Debt, Internal Debt, Debt Servicing and Economic Services Provision in Nigeria: An Empirical Exploration (1981-2016)

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**Abstract**
This study empirically examined the relationships among external debt, internal debt, debt service payment and economic services provision in Nigeria over the period 1981 and 2016. Data used for the study are sourced from the Central Bank of Nigeria Statistical Bulletin of various issues, Debt Management Office and Federal Ministry of Finance. The study employed Augumented Dickey Fuller unit root test, Phillip-Perron unit root test, Johansen Cointegration test and Ordinary Least Square estimating technique. Empirical findings from the study revealed that External Debt and Debt Servicing are inversely related with Economic Services Spending by the government. A one unit increase in External Debt and Debt Servicing would bring about 41.72 units and 40.92 units reduction in Economic Services Provision respectively. The results also show that there exists a statistically significant positive relationship between Internal Debt and Economic Services Provision in Nigeria. A one percent increase in Internal Debt would lead to 27.29 percent rise in Economic Services delivery in Nigeria. Based on the results, government at various levels should seek for domestic loans because they are more beneficial to the economy than external loans; private sector should be allowed to complement government effort in the financing of capital expenditure components as a way of enhancing the quality and size of economic services provision; and tax system should undergo holistic reform by government at various levels to prevent tax evasion and tax avoidance by unpatriotic citizens and corporate organizations and generate more revenue for financing economic services delivery. In addition, government should vigorously pursue diversification of the economy away from the oil sector and invest in other sectors to boost revenue generation that can be channeled to the provision of economic services; and there should be judicious utilization of existing resources by different tiers of government through a programmed based budgeting. This would greatly assist in ensuring that available resources are channeled to the execution of economic services projects already listed in the budget.
**Keywords:** External Debt, Internal Debt, Debt Servicing, Exchange Rate, Ordinary Least Square, Unit Root, Cointegration, Nigeria

## Introduction

Several developing countries usually resort to internal and external borrowings of funds to finance their various developmental projects due to shortage or inadequacy of financial resources in their respective economies. The provision of economic services (transport, communication, construction, agriculture and others) for the improvement of the quality of life of citizens in developing or third world countries is dependent on several factors which include availability of financial resources, good governance, political will, external loan accessibility, interest rate on loanable fund and others too numerous to mention. Weak economies due to low revenue generation usually find it extremely difficult to meet their expenses and have to secure loans from International financial institutions or have to issue bonds and treasury bills to their citizens domestically. International Financial Institutions like World Bank, International Monetary Fund, Asian Development Bank and International Bank for Reconstruction and Development are the lending donor agencies. They give loan on hard and soft conditions depending upon the credit rating of the country.

Past and present administrations over the years in Nigeria have obtained various soft and hard loans from International Financial Institutions and domestic sources to finance developmental projects. In 1981, external debt and internal debt figures were #2.33 billion and #11.19 billion respectively. These figures increased to #17.30 billion and #27.95 billion in 1985. This trend continues as external debt and internal debt figures rose to #298.61 billion and #84.09 billion in 1990. In 1995, external debt figure was #716.87 billion while internal debt figure stood at #477.73 billion. In 2000, external debt figure was #3097.38 billion while internal debt amounted to #898.25 billion. In 2005, external debt figure stood at #2695.07 billion while internal debt figure was #1525.91 billion. In 2010, external debt figure was #689.84 billion while internal debt figure amounted to #4551.82. In 2015, external debt figure was #2111.53 billion while internal debt figure stood at #8837.00 billion.

It is worth mentioning that successive governments in Nigeria have also spent enormous amount of fund to service both internal debt and external debt taken. According to Central Bank of Nigeria Statistical Bulletin for 2016, total debt service payment figure was #1.03 billion in 1981 and rose to #1.61 billion in 1985. In 1990, debt service payment figure increased astronomically to #23.82 billion. The figure stood at #51.06 billion in 1995. In

 

2000, the figure rose to #131.05 billion while it was #393.96 billion in 2005. In 2010, debt service payment figure was #415.66 billion while it stood at #1,060.38 billion in 2015. In 2016, debt service payment figure amounted to #1,584.11 billion.

It should be noted that despite the colossal amount of loans taken from both internal and external sources by successive governments in Nigeria over the years and enormous debt service payments made, the magnitude of their impact on economic services provision or delivery is uninvestigated. This study is undertaken to provide answers to the following questions: What is the relationship between internal debt and economic services provision in Nigeria? Does external debt exert a statistically significant positive or negative correlation with economic services provision in Nigeria? What is the impact of enormous debt service payments on economic services delivery in Nigeria?

**Objectives of the Study**

The overall objective of the study is to empirically investigate the impact of external debt, internal debt and debt service payment on economic services provision in Nigeria over the period 1981 to 2016. The specific objectives of the study are to:

-Examine the relationship between external debt and economic services provision in Nigeria over the studied period.

–Identify the correlation between internal debt and economic services provision in Nigeria within the studied period.

–Investigate the nexus between debt service payment and economic services provision in Nigeria over the studied period.

–Recommend policy prescriptions based on the estimated results.

**Research Questions**

This study is expected to provide answers to the following questions:

1. What is the relationship between external debt and economic services provision in Nigeria?
2. Are internal debt and economic services provision positively or negatively correlated in Nigeria?
3. Does debt service payment exert significant positive or negative connection with economic services provision in Nigeria?

**Hypotheses of the Study**

The hypotheses to be verified by this study are stated below:

1. $H_0$ : External debt has no statistically significant positive relationship with economic services provision in Nigeria.

$H_1$ : External debt has statistically significant positive relationship with economic services provision in Nigeria.

2. $H_0$ : There is no statistically significant positive correlation between internal debt and economic services provision in Nigeria.

$H_1$ : There exists a statistically significant positive correlation between internal debt and economic services provision in Nigeria.

3. $H_0$ : Debt service payment has no statistically significant positive nexus with economic services provision in Nigeria.

$H_1$ : Debt service payment has statistically significant positive nexus with economic services provision in Nigeria.

**Literature Review**

Several empirical studies have been conducted on external debt and economic growth relationship, internal debt and economic growth nexus, debt service payment and economic growth connection, debt stock and social services association and debt service payment and social services provision. It must be stated that the literature on external debt, internal debt, debt servicing and economic services provision is very scanty. Iyoha (1996) conducted a study on the impact of external debt on economic growth of Sub-Saharan African countries for the period 1970 to 1994. Time series data and simulation approach were used for the study. Empirical findings revealed that external debt is negatively and significantly related to investment. The results also showed that debt stock reduction would have significantly increased investment and economic growth. The study recommended that debt forgiveness could provide a much needed stimulus to investment recovery and economic growth in Sub-Saharan African countries. Were (2001) analyzed the impact of external debt on economic growth in Kenya from 1970 to 1995. The study employed time series data and Ordinary Least Square Regression technique. Empirical findings from the study revealed that there was no adverse relationship between debt service payment and economic growth; however, it confirmed some crowding-out effects on private investment. Karogol (2002) examined empirically both the short-run and long-run relationships between economic growth and external debt service for Turkey over the period 1956 to 1996. The study employed a standard production function model

 

analysis using multivariate co-integration techniques. The Vector Autoregression estimates showed that there exists one cointegration equation. Empirical findings from the study revealed that debt service payment is negatively related to economic growth in the long run. The causality test showed uni-directional causality between debt service payment and economic growth. Benedict et al. (2003) examined the channels through which external debt affects growth in low income countries. Their results suggest that the substantial reduction in the stock of external debt projected for highly indebted poor countries would directly increase per capita income growth by about 1 percentage point per annum. Reductions in external could also provide an indirect boost to growth through their effects on public investment.

Edo (2002) analyzed the African external debt problem with reference to Nigeria and Morocco. He concluded that external debt has affected investment severely. Other findings include the fact that fiscal expenditure, balance of payments, and global interest rates are major factors explaining debt accumulation in the studied countries. He, therefore, suggests measures that could alleviate the above problems (privatization, sustained export promotion program, and restructuring and development of capital markets, among others. Muhammad and Hira (2004) examined the impact analysis of external debt servicing on the aggregate investment of Pakistan. A simple and sophisticated technique of classical econometrics is used for the analysis. Empirical findings revealed that debt servicing practices to multilateral financial creditors and other private creditors has a negative impact on investment while the bilateral creditors, IBRD (non-concessional debt) and IDA have shown a positive contribution to the investment. Audu (2004) investigated the impact of external debt on economic growth and public investment in Nigeria from 1970 to 2002. The study was conducted using the cointegration test and error correction method. Empirical findings from the study revealed 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. Abdelmawla and Mohammed (2005) examined the relationship between external debt and economic growth in Sudan over the period 1978 and 2001. The study revealed that export earnings have a significant positive impact while external debt and inflation had negative impact on Sudan's economic growth. Villanueva et al. (2006) used standard neo-classical growth model to explore the dynamics of capital accumulation, external debt and economic growth for Philippines over a period of 2000 to 2003. They used goal seek technique to estimate the steady state ratio of external debt to GDP, associated with doubling the capita income. He concluded that higher ratio of change in interest rate spread to change in debt-to-GDP lowers welfare in long run.

Adepoju et al. (2007) analyzed the effects of external debt management on the economic growth of Nigeria for a period of 1962 to 2006 using time-series data of the various bilateral and multi-lateral arrangements. Their study concluded that accumulation of external debt adversely affected Nigeria's economic growth. Ayadi and Ayadi (2008) examined the impact of external debt on economic growth in Nigeria and South Africa using neoclassical growth model. The study found a negative impact of debt and its servicing requirement on economic growth in the two countries while external debt contributes positively to growth up to a point after which its contribution becomes negative in Nigeria. Adesola (2009) investigated the effect of external debt service payment practices on sustainable economic growth and development in Nigerian from 1981 to 2004. The study used Ordinary Least Square estimating technique for the analysis. Empirical findings from the study revealed that debt service payment to foreign creditors exerted negative impact on sustainable economic growth and development. Butts and Hector (2009) empirically investigated the effect of external debt service payment practices on the economic growth of Nigeria. Ordinary Least Square method of multiple regressions was used to examine how debt payment to multilateral financial creditors, Paris club creditors, London club creditors, Promissory notes holders and other creditors relates to gross domestic product (GDP) and gross fixed capital formation (GFCF) using data from 1981 to 2004. The study showed 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 a negative significant relation to GDP and GFCF. Malik et al. (2010) investigated the relationship between external debt and economic growth in Pakistan over the period 1972 to 2005 employing time series econometric technique. Their result reveals that external debt is negatively and significantly related to economic growth. The evidence suggests that increase in external debt would lead to decline in economic growth.

Choong et al. (2010) examined the effect of different types of debts on the economic growth in Malaysia during the period 1970 to 2006. Using cointegration 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 in the short-run. Tajudeen (2012) examined the causal nexus between public debt and economic growth in Nigeria between 1970 and 2010 using a Vector Autoregressive (VAR). The variables used in the study were tested for stationarity using the Augumented Dickey Fuller and Phillip Perron test. Cointegration test was also performed and the result revealed the presence of cointegration between public debt and economic growth. The cointegration results show that public debt and economic growth have long run relationship. Empirical findings from the study revealed that there is a bi-directional causality between public debt and economic growth in Nigeria. Alfredo and Francisco (2005)

 

empirically tested the linear or non-linear relationship of external debt and economic growth for 20 Latin American and Caribbean economies over the period 1970 and 2002. The study used a dynamic system Generalized Method of Moments (GMM) pane estimator. The results show that lower total external debt levels are associated with higher growth rates and there is an insignificant association between debt service ratios and growth rate of the economy. Shabbir (2009) investigated the external debt effect on economic growth using a relatively small sample of 24 developing countries over the period 1976 to 2003. The study applied random effect and fixed effect estimation. She found that debt servicing to GDP does hamper economic growth and may leave less funds available to finance private investment in these countries leading to a crowding out effect.

Ogunmuyiwa (2011) examined the impact of external debt on promotion of economic growth in developing countries using Nigeria as a case study. The study covers the period 1970 and 2007. Time series data were used with various econometric techniques such as Augumented Dickey Fuller test, Granger Causality test, Johansen Cointegration test and Vector Error Correction Method (VECM). According to this study, external debt only helps to exploit the potentials of a country, it does not enhance it. Empirical results have shown clearly that causation between external debt and economic growth could not be established in the Nigerian context and external debt could thus not be used to forecast improvement or slowdown in economic growth of Nigeria. Malik et al. (2010) examined the impact of external debt on economic performance of Pakistan over the period 1972 to 2005. Time series data and various econometric techniques were used for the analysis. Empirical findings revealed that external debt is negatively and significantly related with economic growth while debt servicing has a statistically significant adverse relationship with economic growth. Sulaiman and Azeez (2012) examined the effect of external debt on economic growth in Nigeria from 1970 to 2010. The study found short and long run relationship among the variables and concluded that external debt contributed positively to economic growth in Nigeria. Chinaemerem and Anayochukwu (2013) conducted a study on the impact of external debt financing on economic development in Nigeria from 1969 to 2011. Empirical findings from the study revealed that external debt service payment contributed positively to economic development in Nigeria.

Nazifi (2014) investigated the causality between debt service payments and provision of social services in Nigeria from 1980 to 2010 employing Augumented Dickey Fuller (ADF) unit root test and Ordinary Least Square estimating technique. Empirical findings from the study revealed a positive relationship between internal debt, exchange rate and social services provision, while an inverse relationship exists between external debt and social service provision. The study suggested the need for more innovativeness in tax collection and administration and implementation of more public-private-partnership in infrastructural financing. Victor et al. (2016) examined the relationship between external debt and economic growth in Nigeria for the period 1981 to 2014. The study employed both descriptive and econometric tools. The regression results showed a significant relationship between external debt and economic growth in Nigeria. However, external debt stock impacted positively while external debt service payment impacted negatively on the annual growth rate of the Nigerian economy both in the long run and the short run.

**Description of Variables**

The **endogenous or dependent variable** in the model which is to be influenced by a number of explanatory variables is **economic services provision.**

**Economic Services Provision-** These are public services provided by the government at various levels for the improvement of the living standard of citizens. According to Central Bank of Nigeria classification, the provision of transport, communication and construction fall under **economic services.** The quality and quantity of these services provided by the government are greatly influenced by the external debt, internal debt, debt service payment, exchange rate and inflation in the economy. Expenditure on economic services provision is depended on these regressors.

The **exogenous or explanatory variables** included in the model are:

**External Debt:** External debt or foreign debt is that part of the total debt that is owed to lenders outside the country. External debt has to be paid back in the currency in which it is borrowed. It can be obtained from foreign commercial banks, international financial institutions like International Monetary Fund, World Bank, African Development Bank and International Bank for Reconstruction and Development. This variable is expected to be positively related with economic services provision in Nigeria. The higher the amount of external debt, the higher the expenditure that would be earmarked by the government for economic services provision while the converse is true.

**Internal Debt-** Internal debt alternatively known as domestic debt is the part of the total government debt in a country that is owed to lenders within the country. Internal debt complements external debt. Commercial banks and other financial institutions constitute the sources of funds for the internal debt. The government borrows from the citizens through the issuance of bonds and treasury bills. This variable theoretically should exert positive relationship with economic services provision. The higher the amount of domestic debt sourced by the government, the greater the expenditure that would be committed to the provision of economic services for the

citizenry while the reverse is true.

**Debt Servicing-** Debt servicing implies the regular payment of installments of loans taken by a country from domestic and external sources. An installment includes interest on debt and a part of the principal. For servicing debt, a country or corporate organization should have those timely cash flows. If a country is unable to honor its debt service obligations in the absence of required funds, the country is said to be unable to service her debt. This variable is expected to be inversely related with economic services provision. This is because the higher the amount of money required to service existing domestic and foreign debts, the lesser would be the amount of fund available for provision of qualitative and quantitative economic services.

**Exchange Rate –** Exchange rate is the price at which the domestic currency is exchanged for foreign currencies. It is the rate at which one currency will be exchanged for another, that is, the value of a country's currency in terms of another. This variable theoretically should exert a negative impact on economic services provision in Nigeria. The continuous depreciation of the value of naira against foreign currency would have adverse effect on economic services provision.

**Inflation Rate –** This variable theoretically should affect economic services provision negatively. The higher the inflation rate, the greater the prices of productive resources or equipment needed by the government to provide qualitative and quantitative economic services in the economy. There would be discouragement or disincentive to invest on the provision of economic services on the part of the government.

**Stochastic Variable -** This variable accommodates other exogenous or explanatory variables influencing economic services provision which are not included in the model. It takes care of the unexplained part of the model.

**Data and Methodology**

This paper used data that are secondary in nature. The annual time series data was obtained from the Central Bank of Nigeria Statistical Bulletin and Debt Management Office. Empirical investigation was carried out on the basis of the sample covering the period 1981 to 2016. The methods of analysis or estimation techniques include Augumented Dickey Fuller (ADF) unit root test, Phillips-Perron (PP) unit root test, Johansen Cointegration test and Ordinary Least Square (OLS) method. Economic services provision was used as the dependent variable while external debt, internal debt, debt service payment, exchange rate and inflation were used as explanatory variables.

**Model Specification**

For empirical analysis purpose, data for this research work are secondary data obtained from the Central Bank of Nigeria's Statistical Bulletin for 2016 and National Debt Management Office for the period 1981 and 2016. The mathematical representation of the variables identified from this model is presented as follows:

ECSP = f( EDBT, IDBT, PDS, EXGR, INFR), where (1)

ECSP = Economic Services Provision
EDBT = External Debt
IDBT = Internal Debt
PDS = Public Debt Servicing
EXGR= Exchange Rate
INFR = Inflation Rate

The regression analysis of Ordinary Least Square (OLS), Augumented Dickey Fuller (ADF) unit root test, Phillips-Perron (PP) unit root test and Johansen Cointegration test were employed to examine the impact of External Debt, Internal Debt, Debt Servicing, Exchange Rate and Inflation on Economic Services Provision in Nigeria over the period 1981 to 2016. Specifically, the estimated regression equation is of the following form:

$ECSP = b_0 + b_1EDBT + b_2IDBT + b_3PDS + b_4EXGR + b_5INFR + U$ (2)

$b_1$, $b_2$, $b_3$, $b_4$ and $b_5$ are elasticity of the parameters of the respective variables.

**The Apriori Test Expectation**

An apriori argument, reason or probability is based on assumed principles or facts, rather than actual or observed fact. These in economic terms are based on economic theory and they seek to determine whether the expected is equal to the observed, i.e. whether the economic expectations are in line with actual observations in the analysis. Therefore, from the OLS linear equation, it was expected that the following conditions are derivable: $b_0 > 0$, $b_1 > 0$, $b_2 > 0$, $b_3 < 0$, $b_4 < 0$, $b_5 < 0$

 

**Table 1 DATA PRESENTED FOR ESTIMATION AND ANALYSIS**

| YEAR | ECSP | EDBT | IDBT | PDS | EXGR | INFR |
|---|---|---|---|---|---|---|
| 1981 | 3.63 | 2.33 | 11.19 | 1.03 | 0.6100 | 21.42 |
| 1982 | 2.54 | 8.82 | 15.01 | 1.17 | 0.6729 | 7.16 |
| 1983 | 2.29 | 10.58 | 22.22 | 1.01 | 0.7241 | 23.22 |
| 1984 | 0.66 | 14.81 | 25.67 | 1.24 | 0.7649 | 40.71 |
| 1985 | 0.89 | 17.30 | 27.95 | 1.61 | 0.8938 | 4.67 |
| 1986 | 1.10 | 41.45 | 28.44 | 1.63 | 2.0206 | 5.39 |
| 1987 | 2.16 | 100.79 | 36.79 | 3.93 | 4.0179 | 10.18 |
| 1988 | 2.13 | 133.96 | 47.03 | 9.24 | 4.5367 | 56.04 |
| 1989 | 3.93 | 240.39 | 47.05 | 13.27 | 7.3196 | 50.47 |
| 1990 | 3.49 | 298.61 | 84.09 | 23.82 | 8.0378 | 7.50 |
| 1991 | 3.15 | 328.45 | 116.20 | 26.41 | 9.9095 | 12.70 |
| 1992 | 2.34 | 544.26 | 177.96 | 19.40 | 17.2984 | 44.81 |
| 1993 | 18.34 | 633.14 | 273.84 | 81.08 | 22.0511 | 57.17 |
| 1994 | 27.10 | 648.81 | 407.58 | 49.40 | 21.8861 | 57.08 |
| 1995 | 43.15 | 716.87 | 477.73 | 51.06 | 21.8861 | 72.51 |
| 1996 | 117.83 | 617.32 | 419.98 | 53.05 | 21.8861 | 29.29 |
| 1997 | 169.61 | 595.93 | 501.75 | 68.54 | 21.8861 | 10.67 |
| 1998 | 200.86 | 633.02 | 560.83 | 64.39 | 21.8861 | 7.86 |
| 1999 | 323.58 | 2577.37 | 794.81 | 30.84 | 92.6934 | 6.62 |
| 2000 | 111.51 | 3097.38 | 898.25 | 131.05 | 102.1052 | 6.94 |
| 2001 | 259.76 | 3176.29 | 1016.97 | 155.42 | 111.9433 | 18.87 |
| 2002 | 215.33 | 3932.88 | 1166.00 | 163.81 | 120.9702 | 12.89 |
| 2003 | 97.98 | 4478.33 | 1329.68 | 363.51 | 129.3565 | 14.03 |
| 2004 | 167.72 | 4890.27 | 1370.33 | 382.50 | 133.5004 | 15.01 |
| 2005 | 265.03 | 2695.07 | 1525.91 | 393.96 | 132.1470 | 17.85 |
| 2006 | 262.21 | 451.46 | 1753.26 | 249.33 | 128.6516 | 8.24 |
| 2007 | 358.38 | 438.89 | 2169.64 | 213.73 | 125.8331 | 5.38 |
| 2008 | 504.29 | 523.25 | 2320.31 | 381.20 | 118.5669 | 11.60 |
| 2009 | 506.01 | 590.44 | 3228.03 | 251.79 | 148.8802 | 12.40 |
| 2010 | 412.20 | 689.84 | 4551.82 | 415.66 | 150.2980 | 13.70 |
| 2011 | 386.40 | 896.85 | 5622.84 | 527.18 | 153.8616 | 10.80 |
| 2012 | 320.90 | 1026.90 | 6537.54 | 679.30 | 157.4994 | 12.08 |
| 2013 | 505.77 | 1387.33 | 7118.98 | 828.10 | 157.3112 | 10.67 |
| 2014 | 393.45 | 1631.52 | 7904.03 | 941.70 | 158.5526 | 8.0 |
| 2015 | 348.75 | 2111.53 | 8837.00 | 1060.38 | 193.2792 | 9.0 |
| 2016 | 261.28 | 3478.92 | 11058.20 | 1584.11 | 253.4923 | 15.7 |

**Source: Central Bank of Nigeria Statistical Bulletin for 2016 and Debt Management Office**

**Stationary Test**

Before the estimation of the equation (2), all the variables were subjected to stationary tests of time series data. If the data are differenced and it is found that they are stationary, then they can be integrated to the order of one or greater; otherwise, a non-stationary series exists.

**Table 2 PHILLIP-PERRON TEST STATISTICS OF THE VARIABLES**

| VARIABLES | PP STATISTICS | 1% | 5% | 10% | ORDER OF INTEGRATION | MAXIMUM NO. OF LAG |
|---|---|---|---|---|---|---|
| ECSP | -7.355483 | -3.639407 | -2.951125 | -2.614300 | I(1) | 3 |
| PDS | -9.471328 | -3.646342 | -2.954021 | -2.615817 | I(2) | 3 |
| IDBT | -2.816563 | -2.636901 | -1.951332 | -1.610747 | I(2) | 3 |
| EDBT | -10.18143 | -3.646342 | -2.954021 | -2.615817 | I(2) | 3 |
| EXGR | -9.356293 | -3.646342 | -2.954021 | -2.615817 | I(2) | 3 |
| INFR | -8.209810 | -3.639407 | -2.951125 | -2.614300 | I(2) | 3 |

**Source:** Author's Computation using E-view 7.1 version

 

**Table 3 AUGUMENTED DICKEY FULLER TEST STATISTICS OF THE VARIABLES**

| VARIABLES | ADF STATISTICS | 1% | 5% | 10% | ORDER OF INTEGRATION | MAXIMUM NO. OF LAG |
|---|---|---|---|---|---|---|
| ECSP | -7.337596 | -3.639407 | -2.951125 | -2.614300 | I(1) | 9 |
| PDS | -5.848720 | -3.653730 | -2.957110 | -2.617434 | I(1) | 9 |
| IDBT | -3.216891 | -2.636901 | -1.951332 | -1.610747 | I(2) | 9 |
| EDBT | -5.921378 | -3.653730 | -2.957110 | -2.617434 | I(2) | 9 |
| EXGR | -8.209955 | -3.646342 | -2.954021 | -2.615817 | I(2) | 9 |
| INFR | -5.677531 | -3.639407 | -2.951125 | -2.614300 | I(1) | 9 |

**Source:** Author's Computation using E-view 7.1 version

**Table 4**
Date: 01/13/18 Time: 18:53
Sample (adjusted): 1983 2016
Included observations: 34 after adjustments
Trend assumption: Linear deterministic trend
Series: ECSP EDBT IDBT PDS EXGR INFR
Lags interval (in first differences): 1 to 1

Unrestricted Cointegration Rank Test (Trace)

| Hypothesized No. of CE(s) | Eigenvalue | Trace Statistic | 0.05 Critical Value | Prob.** |
|---|---|---|---|---|
| None * | 0.703638 | 130.2883 | 95.75366 | 0.0000 |
| At most 1 * | 0.630745 | 88.93847 | 69.81889 | 0.0007 |
| At most 2 * | 0.490445 | 55.06538 | 47.85613 | 0.0091 |
| At most 3 * | 0.399668 | 32.14196 | 29.79707 | 0.0264 |
| At most 4 | 0.323858 | 14.79272 | 15.49471 | 0.0636 |
| At most 5 | 0.042786 | 1.486758 | 3.841466 | 0.2227 |

Trace test indicates 4 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

| Hypothesized No. of CE(s) | Eigenvalue | Max-Eigen Statistic | 0.05 Critical Value | Prob.** |
|---|---|---|---|---|
| None * | 0.703638 | 41.34988 | 40.07757 | 0.0357 |
| At most 1 | 0.630745 | 33.87309 | 33.87687 | 0.0501 |
| At most 2 | 0.490445 | 22.92342 | 27.58434 | 0.1768 |
| At most 3 | 0.399668 | 17.34924 | 21.13162 | 0.1562 |
| At most 4 | 0.323858 | 13.30596 | 14.26460 | 0.0704 |
| At most 5 | 0.042786 | 1.486758 | 3.841466 | 0.2227 |

Max-eigenvalue test indicates 1 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Table 3 above presents the cointegration result for the variables. Here, it could be observed that the variables in the equation are cointegrated. The existence of cointegration suggests that there is a long-run relationship among the variables in the equation. Trace test and Max-eigenvalue test indicate cointegration at 5% levelof significance respectively. As a result of this, an ordinary least square regression was estimated because the variables are stationary at their various first and second differences.

 

**Table 5**
**Dependent Variable: ECSP**
**Method: Least Squares**
**Date: 01/13/18 Time: 18:47**
**Sample: 1981 2016**
**Included observations: 36**

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | 44.83714 | 30.30879 | 1.479344 | 0.1495 |
| EDBT | -0.041720 | 0.017167 | -2.430185 | 0.0213 |
| IDBT | 0.027290 | 0.025303 | 1.078505 | 0.2894 |
| PDS | -0.409227 | 0.187126 | -2.186904 | 0.0367 |
| EXGR | 3.222200 | 0.510742 | 6.308865 | 0.0000 |
| INFR | -0.788658 | 0.796450 | -0.990217 | 0.3300 |

| | | | |
|---|---|---|---|
| R-squared | 0.829639 | Mean dependent var | 175.1597 |
| Adjusted R-squared | 0.801246 | S.D. dependent var | 173.2613 |
| S.E. of regression | 77.24312 | Akaike info criterion | 11.68280 |
| Sum squared resid | 178995.0 | Schwarz criterion | 11.94672 |
| Log likelihood | -204.2905 | Hannan-Quinn criter. | 11.77492 |
| F-statistic | 29.21939 | Durbin-Watson stat | 1.773650 |
| Prob(F-statistic) | 0.000000 | | |

**Table 6 Presentation of Regression Result**

| VARIABLS | COEFFICIENT | STANDARD ERROR | T-STATISTICS | PROB. | APRIOPI EXPECTATION | INFERENCE |
|---|---|---|---|---|---|---|
| Constant term | 44.83714 | 30.30879 | 1.479344 | 0.1495 | $b_0 > 0$ | Correct sign and significant |
| EDBT | -0.041720 | 0.017167 | -2.430185 | 0.0213 | $b_1 < 0$ | Incorrect sign and significant |
| IDBT | 0.027290 | 0.025303 | 1.078505 | 0.2894 | $b_2 > 0$ | Correct sign and significant |
| PDS | -0.409227 | 0.187126 | -2.186904 | 0.0367 | $b_3 < 0$ | Correct sign and significant |
| EXGR | 3.222200 | 0.510742 | 6.308865 | 0.0000 | $b_4 > 0$ | Incorrect sign and significant |
| INFR | -0.788658 | 0.796450 | -0.990217 | 0.3300 | $b_5 < 0$ | Correct sign and significant |
| Significant at 5% | | $R^2 = 0.82$ | | | DW = 1.7 | |

**Source:** Author's computation using E-view 7.1 version

**Interpretation and Discussion of Empirical Findings**

The result in table 5 shows that Internal Debt (IDBT) and Exchange Rate (EXGR) are positively related with Economic Services Provision (ECSP) in Nigeria. This implies that if Internal Debt (IDBT) and Exchange Rate (EXGR) are increased by a unit each, Economic Services Provision is expected to increase by 0.027290 and 3.222200 percent respectively. External Debt (EDBT) and Debt Servicing (PDS) are inversely related to Economic Services Provision which suggests that a one unit increase in External Debt and Debt Servicing will cause -0.041720 and -0.409227 reduction in Economic Services Provision (ECSP) respectively. However, the empirical result reveals that Inflation (INFR) is negatively related to Economic Services Provision (ECSP). The coefficient of Inflation (INFR) in the estimated regression equation is -0.788658 which is statistically significant with a t-value of -0.788658. This implies that a one unit rise in inflation rate would reduce Economic Services Provision (ECSP) by 78.86 units. This is in conformity with apriori theoretical expectation that there is an inverse relationship between Inflation rate and Economic Services Provision (ECSP).

The coefficient of determination ($R^2$) indicates that over 82 percent changes in the Economic Services Provision (ECSP) are explained by External Debt (EDBT), Internal Debt (IDBT), Debt Servicing (PDS), Exchange Rate (EXGR) and Inflation Rate (INFR) taken together. This shows that the estimated equation has a good fit, that is, the explanatory variables are good explainers of changes in Economic Services Provision (ECSP)

 

in the Nigerian economy. The unexplained variation of 18 percent could be attributed to some other variables influencing Economic Services Provision (ECSP) which are not included in the model. The Adjusted Coefficient of Determination ($R^2$) is 0.80 and this shows that 80 percent variation in Economic Services Provision (ECSP) is caused by variations in External Debt (EDBT), Internal Debt (IDBT), Debt Servicing (PDS), Exchange Rate (EXGR) and Inflation Rate (INFR). The specification of the model is statistically significant given its F-test to be 29.21939. The F-statistic value of 29.21939 is high enough, this shows the overall significance of the model and this indicates that collectively, all the explanatory variables are important determinants of Economic Services Provision (ECSP) in Nigeria.

The Durbin-Watson statistics with a value of 1.773650 illustrates absence of autocorrelation among the variables in the model. Since External Debt exerts a statistically significant negative relationship with Economic Services Provision in the model, thus, the null hypothesis is accepted which states that there is no significant positive relationship between External debt and Economic Services Provision in Nigeria. Empirical findings further reveal that Internal Debt has a statistically significant positive correlation with Economic Services Provision in the model, thus, the null hypothesis is rejected which states that there is no significant positive correlation between Internal Debt and Economic Services Provision in Nigeria. The results also show that there exists a statistically significant inverse relationship between Debt Servicing and Economic Services Provision, thus, the null hypothesis is accepted which states that there is no significant positive nexus between Debt Servicing and Economic Services Provision in the Nigerian economy.

**Conclusion and Recommendations**

This paper explored empirically the Economic Services Provision implications of External Debt, Internal Debt, Debt Servicing, Exchange Rate and Inflation in Nigeria, using secondary data from Central Bank of Nigeria (CBN) and Debt Management Office from 1981 to 2016. The model was found to be significant and most of its parameter estimates are as expected. The empirical results revealed that External Debt and Debt Servicing have inverse relationships with Economic Services Provision in Nigeria. This suggests that obtainment of more external debt in the country will lead to high debt servicing which in turn have negative effect on the provision of economic services in Nigeria in the long run. There would be significant reduction in the amount of budgetary allocation available for financing economic services provision due to high level of debt service payment to foreign creditors. The study further revealed that there is a positive correlation between Internal Debt and Economic Services Provision which is in conferment through a programmed based budgeting. This would greatly assist in ensuring that available resources are channeled to the execution of economic services projects already listed in the budget.

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