Effect of Government Public Debt on Economic Development in Nigeria

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Abstract

This study examined the resultant effect of government borrowings on economic development in Nigeria. This study span from the period of 1990 to 2020 and annual data was sourced secondarily from the World Development Indicators database (2020) and CBN statistical bulletin which were analyzed using multiple regression model with Augmented Dickey-Fuller (ADF) unit root test, Johansen co-integration, and Error Correction Mechanism (ECM). The study employed external debt (EXD), domestic debt (DOD), interest rate (INTR), and inflation (INF) as independent variables whilst the human development index (HDI) was used as the dependent variable and was a proxy for development. The result revealed a positive statistically significant relationship between external debt and economic development the same as domestic debt and economic development in Nigeria, while interest rates have a negative statistically significant relationship with economic development in Nigeria. However, inflation was found to be negatively statically insignificant to economic development in Nigeria. Based on the findings, this study recommended that the government should direct borrowed monies to sectors/areas of the economy that will spur growth, such as education, health, industry, and transportation. The education and health sectors can be enhanced with enough funding and equipment; skill learning should be made mandatory beginning in secondary school.

Introduction

Government borrowing is a loan taken by the government that is included in the Budget document as capital receipt. It's essentially the total amount of money borrowed by the federal government to pay for public services and benefits. The government announces an annual borrowing program in the Budget because tax and non-tax revenue is insufficient to fund the government's spending program (Economic times, 2020). Government borrowing becomes necessary, according to Abdulkarim and Saidatulakmal (2021), when government revenue sources are

insufficient to finance growing government expenditures. Borrowing at a reasonable rate to fund public and infrastructure development is the key to accelerating economic growth and development. However, excessive borrowing without proper investment planning can result in a high debt burden and interest payments, which can have a number of negative consequences for the economy. Most governments have massive outstanding debts as a result of this process over the years (Joy & Panda, 2020).

Nigeria has struggled with a higher debt service to revenue ratio since the recession in 2016, as revenues have fallen in direct correlation with the drop in oil prices. In 2019, Nigeria's government spent 2.45 trillion Nigerian Naira on debt service, out of total revenue of N4.1 trillion, for debt service to revenue ratio of 59.6 percent. The rising cost of Nigeria's debt profile breached a new milestone with the country's debt service as a percentage of revenue rising to 83 percent in 2020. This suggests that 83 percent of the revenue generated in 2020 was used to meet debt service obligations and this is worrisome. In 2020, the government spent N1.76 trillion to service domestic debt, compared to a budget of N1.87 trillion. A total of N553 billion was spent on foreign debts, compared to a target budget of N805.47 billion. Lower interest rates on foreign borrowing, as well as very limited borrowing from the foreign debt market during the year, are likely to have contributed to the decrease. Instead of the budgeted N272.9 billion, the government only contributed N4.58 billion to the sinking fund. The sinking fund is required to set aside funds that will be used to pay down other loans in the future, such as bonds. The government's constant borrowing from the domestic market was preventing private businesses in need of credit from obtaining financing for expansion and growth (Ogunjimi, 2019).

According to Izuaka (2021), Nigeria's debt situation will worsen in 2022, with the government borrowing N5.012 trillion to finance a budget deficit of N6.3 trillion and a budgeted total budget of N16.39 trillion. complicating the country's debt situation, which is becoming

increasingly unmanageable. While the government claims that its debt-to-GDP ratio is within a safe range of 23%, it has spent the majority of its earnings to service mounting debt for years. In the first five months of 2021, the government spent N1.8 trillion on debt servicing, accounting for nearly 98 percent of total revenue generated during the same period. As of March 31, the country's total debt was N33.11 trillion Izuaka (2021).

When a country spends a large portion of its revenue servicing massive debts, it leaves little money to fund critical infrastructure, which has a negative impact on growth and development. Furthermore, according to the National Bureau of Statistics (NBS) 2019 Poverty and Inequality in Nigeria report, 40.1 percent of Nigeria's population, or nearly 83 million people, live below the country's poverty line of N137,430 ($381.75) per year, highlighting the country's low levels of wealth in Africa's largest economy (Abdulkarim & Saidatulakmal 2021). A nation's road to economic growth and development is hampered by an increasing domestic debt profile. The cost of servicing the debt may rise beyond the economy's ability to cope, posing a threat to the country's ability to meet its fiscal and monetary policy goals (Soludo, 2003).

With the aforementioned assertions, economic development in Nigeria may not have been truly encouraged, as development goals are typically linked to improvements in a variety of areas or indicators (such as literacy rates, life expectancy, and per capita GDP), of which the HDI is a composite index (Pritchett, Woolcock & Andrews, 2013). Economic development is the process of creating wealth for the benefit of the community. It's more than a job program; it's an investment in growing your economy and improving the prosperity and quality of life for everyone in your community (California Association for Local Economic Development (2021). Furthermore, a growing debt burden may limit the

government's ability to invest more productively in infrastructure, education, and public health (Soludo, 2003).

Nigeria is currently one of the most heavily indebted countries in Sub-Saharan Africa, with a slowed GDP growth rate, slowed export growth, rapidly dwindling income per capita, and rising poverty levels. The majority of these countries, including Nigeria, have been caught in a cycle of hasty and distress borrowing that they are unable to service.Worse still, their primary exports' world prices are deteriorating, necessitating more borrowing (Ogunjimi, 2019). As a result, the purpose of this research is to look into the impact of government borrowing on Nigeria's economic development

Borrowing at a reasonable rate to fund public and infrastructure development is the key to accelerating economic growth and development. However, excessive borrowing without proper investment planning can result in a high debt burden and interest payments, which can have a number of negative consequences for the economy. Most governments have massive outstanding debts as a result of this process over the years (Joy and Panda, 2020).

In Nigeria, government borrowing is clearly increasing, resulting in a large debt with high servicing costs and a negative impact on the economy. In the first five months of 2021, the government spent N1.8 trillion on debt servicing, accounting for over 98 percent of the revenue generated during the same period. The country's total debt was N33.11 trillion as of March 31, and another N5.012 trillion is expected to be borrowed in 2022 to cover an N6.3 trillion budget deficit with a proposed total budget of N16.39 trillion . To Soludo (2003), a rising debt burden may limit the government's ability to invest more productively in infrastructure, education, and public health. According to Nigeria's Poverty and Inequality Report, 40.1 percent of the country's population, or nearly 83 million people, live below the poverty line of N137,430 ($381.75) per year.

These are serious issues that require immediate attention, which is why the purpose of this study is to investigate the impact of government borrowing on economic development in Nigeria, as well as other macroeconomic variables such as inflation and interest rate, which appear to influence the development and to propose solutions through proactive policy recommendations. Some of the research questions are:

- What is the impact of government borrowing on economic development in Nigeria?
- What is the impact of interest rate on Nigeria's development?
- What is the impact of inflation on Nigeria's development?

The objective of this study which is derived from the research questions are as follows:

- To investigate if government borrowing has a significant impact on Nigeria's economic development.
- To examine if the impact of interest rate on Nigeria's development is significant.
- To determine if the impact of inflation on Nigeria's development is significant.

The scope of the paper is from 1990 to 2020. The data were sourced from the Central Bank of Nigeria Statistical Bulletin and complimented by the National Bureau of Statistics.

Conceptual Literature

Government Borrowing

Government borrowing is a loan obtained by the government that is recorded as capital receipts in the Budget document. It's the total amount of money borrowed by the federal government to provide government services and benefits. Because tax and non-tax revenue is insufficient to fund the government's spending program, the government announces an annual borrowing program in the Budget (Economic times, 2020). Government Borrowing refers to the government sector's demand for loans obtained through financial markets to fund purchases not covered by taxes. In terms of the circular flow, this is one of two family saving demands that are channeled into financial markets, the other being investment borrowing. The most common way for governments to borrow is to issue securities, such as government bonds and bills. Countries with poor credit ratings may borrow directly from supranational entities (US legal, 2021). The key to accelerating economic growth and development is borrowing at a reasonable rate to support public and infrastructural improvements. Excessive borrowing without sufficient investment planning, on the other hand, can lead to a significant debt burden and interest payments, which can have a number of negative economic implications (Joy & Panda, 2020). The government's capacity to invest more productively in infrastructure, education, and public health may be hampered by rising debt levels (Soludo, 2003).

Economic Development

The process of developing wealth for the benefit of a community is known as economic development. It's more than an employment program; it's an investment in your community's economic growth and improved wealth and quality of life (California Association for Local Economic Development (CALED), 2021). Economic development strategies used to focus on industrialization and infrastructure, but since the 1960s, they've become more concerned with poverty alleviation

(Finnemore, 1996). Improvements in a range of sectors or indicators, such as literacy rates, life expectancy, and poverty rates, are often associated with economic development (Pritchett, Woolcock, and Andrews 2013). Economic development is the transformation of simple, low-income national economies into modern industrial economies (Myint and Krueger, 2000). The human development index (HDI), which is published on a regular basis by the United Nations Development Programme (UNDP) in its Human Development Report, is the most well-known indicator of development. The HDI is a composite indicator that ranks countries based on how well they perform across three categories. Specifically, life expectancy, education, and GDP per capita in PPP dollars (UNDP, 2011).

Basic Theories

Modernization Theory

Modernization theory arose from the ideas of German sociologist Max Weber (1864–1920), which served as the foundation for Harvard sociologist Talcott Parsons' (1902–1979) modernization paradigm. The theory explains how societies progress through the process of modernization. It examines a country's internal variables, presuming that, with aid, "traditional" countries may achieve development in the same way that more industrialized countries have (Knöbl, 2003).

Traditional communities will develop as they adopt more contemporary practices, according to modernization theory. Modernization theorists argue that modern states are wealthier and more powerful and that their subjects are freer to enjoy higher living standards. Modernization is required or at least preferable to the status quo as a result of developments such as new data technology and the need to update conventional systems in transportation, communication, and industry. This viewpoint makes critique difficult since it suggests that such advancements, rather than the other way around, determine the boundaries of human interaction.

However, it also suggests, almost ironically, that human agency determines the speed and severity of modernity. Rather than being dominated by tradition, civilizations undergoing modernization are said to arrive at forms of governance governed by abstract principles. According to the hypothesis, when modernity takes root, traditional religious beliefs and cultural qualities become less significant.

Modernization is now understood in three ways: 1) as the internal development of Western Europe and North America in relation to the European New Era; 2) as a process by which countries that do not belong to the first group of countries strive to catch up; and 3) as processes of evolutionary development of the most modernized societies (Western Europe and North America), i.e. modernization as a continuous process carried out through reforestation (Gavrov, and Klyukanov, 2015). Modernization is linked to urbanization, industry, and the growth of education, according to historians. "Urbanization accompanied modernization and the rapid process of industrialization (Kendall, 2007)," writes Kendall. Modernization is linked to an overarching process of rationalization in sociological critical theory. When a society's level of modernization rises, the individual becomes more significant, eventually displacing the family or community as society's core unit. It's also a topic covered in regular Advanced Placement World History courses.

Human Development Theory

Human development theory incorporates concepts from a variety of disciplines, including ecology, sustainable development, feminism, and welfare economics. It avoids normative politics in favor of focusing on how social and instructional capital might be leveraged to maximize the overall value of human capital in an economy. The most well-known human development theorists are Amartya Sen and Mahbub ul Haq. Democracy and the protection of human rights, according to Sen, are beneficial to development. Freedom of the press, expression, assembly, and other such liberties boost the chance of honest, clean, and good government. The process

of human development entails the expansion of human freedom. It is "the expansion of freedoms that enable people to live lives that are meaningful to them."

Political freedom, economic opportunity, social opportunities, transparency, and security, according to Sen, are five forms of interconnected freedoms. By providing public education, health care, social safety nets, strong macroeconomic policies, productivity, and environmental protection, the state may help to foster liberties. Freedom entails not just the ability to do something, but also the ability to make it happen. "Economic possibilities, political liberties, social powers, and the enabling condition of good health, basic education, and the support and growth of initiatives" all influence what people can achieve (their potential).

Sen has influenced UNDP thinking on human development, including the creation of the human development index (HDI), a composite index that measures a country's average achievement in three basic dimensions of human development: a long and healthy life, as measured by life expectancy at birth; knowledge, as measured by the adult literacy rate and the combined gross enrolment ratio for primary, secondary, and higher education. While the idea of human development is much larger than anyone composite index can capture, the HDI serves as a valuable complement to income as a summary measure of human well-being. Cultural freedoms should be recognized as core human rights and as necessary for the development of increasingly diverse 21st-century civilizations. Every person should be able to keep their ethnic, linguistic, and religious identities. The only sustainable strategy to grow in varied communities is to implement policies that respect and safeguard different identities. Cultural freedoms must be maintained and protected for economic globalization to succeed, and xenophobic objections to cultural diversity must be addressed and overcome (Sen, 2001).

Empirical Literature Review

Abdulkarim and Saidatulakmal (2021) evaluated the influence of government debt on Nigeria's economic growth. Using annual data from 1980 to 2018 and the Autoregressive Distributed Lag approach, Real GDP, domestic debt, external debt, debt service payment, foreign reserve position, interest rate, gross fixed capital creation, and foreign direct investment were the variables of research. External debt was found to be an obstacle to long-term growth while having a growth-enhancing effect in the short run. Domestic debt had a large favorable long-term influence on growth while having a negative short-term impact. Debt service payments slowed growth both long and short term, proving the debt overhang effect. According to the conclusions, the government should invest the borrowed monies in diversifying the economy's productive base.

Lucky and Godday (2017) investigated the relationship between the structure of public debt and the growth performance of the Nigerian economy from 1990 to 2015 using simple and multiple regression models. Gross domestic product, domestic debt, external debt, and total debt were among the variables examined. Total public debt has a positive and considerable impact on Nigeria's gross domestic product, according to the results of simple regression. Similarly, the findings of the multiple regression analysis demonstrated that, while Nigeria's external debt is negative and significant to economic growth, it is also significant to the country's economic growth. As a result, the report suggested that Nigeria prioritize domestic policies over its external debt obligations.

Elom-Obed, Odo, Elom, and Anoke (2017) used the co-integration test, the Vector Error Correction Model (VECM), and the Granger causality test to investigate the relationship between public debt and economic development in Nigeria from 1980 to 2015. The analysis used real gross domestic product, domestic private savings,

external debt, and domestic debt as variables. External debt and domestic debt both have negative and significant consequences on Nigerian economic growth, according to the empirical findings. Furthermore, the findings revealed that domestic debt and external debt both contributed to real gross domestic product (RGDP), with causality extending from external debt to domestic debt.

Okwu, Obiwuru, and Oluwalaiye (2016) used descriptive statistics, unit root test, co-integration test, and error correction model (ECM) to explore the effects of domestic debt on economic development in Nigeria from 1980 to 2015. The real gross domestic product, domestic debt stock, domestic debt service expenditure, and average banks' lending rate were the factors studied. The findings revealed that overseas debt service expenditure has a significant and positive impact on economic growth, whereas domestic debt service expenditure has a significant and negative impact on economic growth. The bank's loan rate, on the other hand, has a negative and insignificant impact on Nigerian growth.

Igbodika, Jessie, and Andabai (2016) used the Ordinary Least Square (OLS) technique to explore the relationship between domestic debt and Nigerian economic development from 1987 to 2014. The variables considered in the analysis were the gross domestic product, domestic debt, interest rate, and inflation rate. The empirical findings revealed that interest rates had a negative and significant impact on Nigeria's gross domestic product (GDP). Domestic debt has a favorable and significant impact on Nigeria's gross domestic product, according to the findings.

Peter and Fersinand (2016) used the unit root test, co-integration test, and Granger causality test to investigate the debt load and development knot in Nigeria from 1980 to 2014. The variables used in the study were real gross domestic product (RGDP), domestic debt, external debt, domestic debt burden, external debt burden, total debt burden, and total debt/GDP ratio. The findings of the co-integration show that the variables have a long-term association. The Granger Causality results

demonstrated that different debt stocks granger caused the Nigerian economy's performance.

Knowledge Gap

According to a review of the literature, many studies have been conducted on the impact of government borrowing on economic growth in Nigeria, but none have looked into the impact of government borrowing on economic development in Nigeria. As a result, there is a research gap that needs to be filled, and this study fills that gap. Finally, Nigeria's growing and unending government borrowing is a critical and concerning issue. As a result, it was justified in being timely and prominently featured in order to pique the interest of economic policymakers and academics.

Research Methods

Theoretical Framework

The key to accelerating economic growth and development is borrowing at a reasonable rate to fund public and infrastructure development. This viewpoint is consistent with the neoclassical economic growth model – the Keynesian theory, which views capital accumulation as a stimulus for economic expansion. The Asian Tigers of Malaysia, Singapore, Indonesia, and Taiwan, as well as the South American country of Brazil, have all experienced substantial growth. Using external debt, these countries were able to change their economies (Momodu, 2012). Excessive borrowing without proper investment planning, on the other hand, can lead to a high debt burden and interest payments, which can have a number of negative economic consequences (Joy & Panda, 2020). The government's ability to invest more productively in infrastructure, education, and public health may be hampered by rising debt levels (Soludo, 2003).

Model Specification

A model is a representation of reality that is abstracted. The study used a multivariate linear regression model to quantify the impact of government borrowing on Nigerian economic development. Only the years 1990 to 2020 will be considered in the estimation. As a result, the model is defined as follows:

$$HDI = f(EXD, \quad DOD, \quad INTR, \quad INF) \quad (1)$$

Econometrically equation becomes

$$HDI_t = \beta_0 + \beta_1 EXD_t + \beta_2 DOD_t + \beta_3 INTR_t + \beta_4 INF_t + \varepsilon_t \quad (2)$$

Where;

HDI = dependent variable

EXD, DOD, INTR, INF = independent variables

HDI = Human Development index a proxy for economic development; EXD = External debt;

DOD = Domestic debt; INTR = Interest rate; INF = Inflation; β_0 = intercept; β_1 = Parameter coefficient of EXD; β_2 = Parameter coefficient of DOD; β_3 = Parameter coefficient of INTR

β_4 = Parameter coefficient of INF; ε = Error term; t = Time

Definition of Variables

Human Development Index (HDI)

The Human Development Index (HDI) is a statistic developed and compiled by the United Nations to measure various countries' levels of social and economic development. (Investopedia, 2020). *Interest Rate (INTR:)* Interest rate is defined as a price that a borrower or a loan client pays for use of borrowed funds from a lender or the fee which is paid for the use of an asset that is borrowed from a lender (Maigua & Gekara, 2016). *External Debt (EXD):* External debt is the portion of a

country's debt that is borrowed from foreign lenders, including commercial banks, governments, or international financial institutions. (Kenton, 2021). *Inflation (INF):* When the general price level rises, each unit of currency buys fewer goods and services; consequently, inflation corresponds to a reduction in the purchasing power of money (Walgenbach, Dittrich, & Hanson, 1973). *Domestic Debt (DOD):* internal debt or domestic debt is the component of the total government debt in a country that is owed to lenders within the country.

Estimation Technique

This study will use the error correction model as its estimate technique, and in order to do so, the study will use the Augmented Dickey-fuller (ADF) test to check for unit root on all of its variables, ensuring that all of the study variables are integrated at order one. That is, at the first difference, they are immobile. Then, using the Johansson cointegration test, a cointegration test will be performed. ECM analysis is justified if the variables are cointegrated. As a result, error correction mechanisms are utilized to correct or remove short-term discrepancies. It is negatively signed and measures the rate of return to equilibrium. The error-correction term's coefficient indicates the percentage of adjustment that will occur in the long run. The ECM is described as follows:

$$\Delta LHDI_t = \beta_0 + \beta_1 \Delta EXD_t + \beta_2 \Delta DOD_t + \beta_3 \Delta INTR_t + \beta_3 \Delta LINF_t + \gamma ECT(-1) + \varepsilon_t \qquad (3)$$

Where:

ECT(-1) = Error correction term lagged one period

γ = Gamma; Δ = Change of difference parameter. Others have been explained above.

Evaluation of Estimate

The computed coefficients must be theoretically meaningful and statistically acceptable before the model may be evaluated. The following three criteria will be used to evaluate these models:

Economic criteria: A priori Expectation

The conformance of each independent variable's coefficient with economic theory postulates is displayed here, that is, whether the sign and size of the parameters of economic interactions between the dependent and independent variables match the predictions of economic theory.

Statistical Criteria: First Order Test

This is for determining the statistical reliability of the model's calculated parameters. The F-statistic, t-statistic, Coefficient of determination (R^2) and Adjusted R^2 are used here.

The Coefficient of Determination (R^2)/Adjusted R^2

The R^2 or adjusted R^2 assesses the model's goodness of fit and is used to assess the explanatory power of explanatory variables on dependent variables. As a result, the higher the R^2 and R^2 adjusted values are, or the closer they are to 1, the better the model can explain variations in the dependent variable. As a result, the better the OLS regression, which is why the R^2 is known as the coefficient of determination because it reveals the amount of variance in the dependent variable explained by explanatory variables.

The F-test

The F-statistic is used to determine if the independent factors have a combined or overall significant impact on the dependent variable. If the estimated F is greater

than the F table value, the independent variables in the regression equation are jointly significant to the dependent variable, otherwise, they are not.

The t-test

This is used to assess the dependability and statistical significance of each independent variable on independent variable. Each coefficient's absolute t-value is compared to 1.96, and if more than 1.96, the variable containing the coefficient is considered statistically significant and suitable for inferences and maybe forecasts.

Econometric Criteria: Second-Order Test

The goal of this study is to see if the assumptions of the econometric technique are met or not in any given scenario. They determine the consistency and unbiasedness of statistical criteria, as well as if the estimates have desirable features such as consistency and unbiasedness. It also uses the Durbin-Watson (D-W) statistic, heteroscedasticity test, and multicollinearity test to determine the validity of non-auto correlated disturbances.

(a) If d^* is approximately equal to $2(d^* = 2)$ we accept that there is no autocorrelation in the function; (b) If $d^* = 0$, there exist perfect positive auto-correlation. Furthermore, if $0 < d^* < 2$, that is if d^* is less than two but greater than zero, it denotes that there is some degree of positive autocorrelation, which is stronger, the closer d^* is to zero and (c) If d^* is equal to $4(d^*=4)$ there exists a perfect negative auto-correlation, while if d^* is less than four but greater than two $(2 < d^* < 4)$, it means that there exists some degree of negative autocorrelation, which is stronger the higher the value of d^*.

Sources of Data

To meet the study's aims, data will be sourced secondarily from the 2020 CBN Statistical Bulletin and the National Bureau of Statistics from 1990 to 2020.

Empirical results and analysis

Unit root test

Table 1. Summary of Unit Root Tests

Variable	ADF statistic	Level of Sig	Lagged length	Critical Values	Order of Integration	Assumption
HDI	-2.415261	5%	6	-1.956406	I(1)	None
INF	-4.441948	5%	0	-2.967767	I(1)	Intercept
INTR	-6.861769	5%	0	-2.967767	I(1)	Intercept
LNDOD	-3.406304	5%	0	-2.967767	I(1)	Intercept
LNEXD	-3.757233	5%	0	-2.967767	I(1)	Intercept

Source: Computed by the Researcher using Eviews 10

The results of the ADF test revealed that while none of the variables were stationary at the level, they were all stationary after the first difference. This also implies that all variables are integrated in the first order (1). Cointegration analysis is justified since all of the variables are integrated in the same order.

Table 2. Summary of Co integration Test Results

Variable	Trace Statistic	5 Percent Critical Value	Max-Eigen Statistics	5 Percent Critical Value	Hypothesized No. of CE(s)
HDI	107.4979	69.81889	46.83609	33.87687	None *
INF	60.66178	47.85613	38.17063	27.58434	At most 1 *
INTR	22.49115	29.79707	18.22402	21.13162	At most 2
LNDOD	4.267127	15.49471	3.865374	14.26460	At most 3
LNEXD	0.401753	3.841466	0.401753	3.841466	At most 4

* denotes rejection of the hypothesis at the 0.05 level

Both the Trace statistic and the highest Eigen-value statistic have two co integrating equations, according to the results of the co integration test. As a result, we infer that

our model variables are co integrated, implying that there is a long-run link between the study's variables. The presence of these co integrating interactions in the model then motivates the use of an error correction model to estimate the model parameters.

Table 3. Summary of Regression Results (ECM)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.008789	0.007106	-1.236823	0.2281
D(LNEXD)	0.033866	0.012681	2.670706	0.0134
D(LNDOD)	0.145930	0.016784	8.694790	0.0000
D(INTR)	-0.009879	0.002049	-4.822153	0.0001
D(INF)	-0.000985	0.000527	-1.870316	0.0737
ECM(-1)	-0.493865	0.341619	-1.445662	0.1612

Source: Author's Compilation using Eview 10

R-squared	0.996252
Adjusted R-squared	0.995471
F-statistic	1275.778
Prob(F-statistic)	0.000000
Durbin-Watson stat	2.193917

Economic Criteria

The conformance of each independent variable's coefficient with economic theory postulates is displayed here, that is, whether the sign and size of the parameters of economic interactions between the dependent and independent variables match the predictions of economic theory. The conformance of the coefficients of the independent variables in our regression model to a priori expectation is now examined.

Expected and Obtained Signs of the Parameter   Estimates.

Variable	Expected sign	Obtained sign	Remark
LNEXD	Positive	Positive	Conformed
LNDOD	Negative	Positive	Not Conformed
INTR	Negative	Negative	Conformed
INF	Negative	Negative	Conformed

Source: Authors' compilation

All of the research variables' parameter estimates (domestic debt, interest rate, and inflation) are projected to be negative a priori, with the exception of external debt, which is expected to be positive. With the exception of domestic debt, evidence from the ECM result shows that other variables adhere to their respective a priori predictions. In the absence of other factors, the negative coefficients of INTR and INF imply that these variables and the dependent variable HDI have an inverse relationship. In other words, a 1% increase in INTR and INF will result in a 0.98 and 0.1 percent decrease in HDI, respectively. External debt (EXD) and domestic debt (DOD), on the other hand, have a directional relationship with the human development index (HDI), meaning that a 1% rise in EXD or DOD results in a 3.4 percent or 14.5 percent increase in HDI, respectively. These explanations for the interaction between HDI and the modeled determinants, on the other hand, are only relevant and true when the variables of interest are statistically significant.

The coefficient of multiple determinations (R^2) indicates that the model has a very excellent fit, as the independent variables were found to jointly explain around 99.6% of the systematic fluctuations in the dependent variables, according to the ECM results reported in sub-section 4.2 numbers 3. The adjusted R^2 confirms the model's suitability. Factors not explicitly incorporated in the model account for just about 0.4 percent of the variability in the human development index.

F-test

The F-statistic checks an estimated model's overall significance. Our estimated model's F-statistic is 1275.778, and the F-statistic probability is 0.000000. The F-statistic probability is smaller than the specified significance level of 5%, indicating that the research model's independent variables have a combined significant impact on HDI in Nigeria.

The Student T-Test

We're trying to figure out how statistically reliable and significant the individual parameters in our model are. We'll do this by comparing each coefficient's absolute t-value to the absolute critical t-value of 1.96, and if the absolute t-value is greater than the absolute critical t-value of 1.96, the variable containing the coefficient is considered statistically significant and suitable for statistical inference and possibly forecasting. The table below shows the results of this exercise.

Table 4: The Result for the t-test

Variable	t-calculated	t-tabulated	Conclusion
LNEXD	2.670706	1.96	Significant
LNDOD	8.694790	1.96	Significant
INTR	-4.822153	1.96	Significant
INF	-1.870316	1.96	Non-significant

Source: Author's Compilation

The t-statistics results above show that all the estimated parameters (EXD, DOD, and INTR) were found to be statistically significant at a 5% significance level with respect to HDI in Nigeria except INF as their *t-values* are not less than the hypothesized critical t-values of 1.96. On the other hand, the estimated parameter for inflation rate (INF) was found to have statistically insignificant effects on HDI in Nigeria at a 5% significance level during the period reviewed.

Econometric Criteria

The Durbin-Watson statistic is 2.193917, based on the regression result. Since d* is approximately equal to two, this suggests that there is no autocorrelation (2). 2.193917 has a stronger tendency to the left than it has to the right. As a result, the residuals, also known as the model's error term, are not serially connected.

The ECM Result

The error correction coefficient of -0.493865 with a probability value of 0.1612 is correctly signed but not statistically significant at a 5% significant level, as reported in the results of estimation presented in sub-section 4.2 number 3. Only if ECM was found to be statistically significant would the speed of adjustment to equilibrium have been 49.4 percent within a year, implying that equilibrium is not restored in the long run

Conclusion and Policy Recommendations

The impact of government borrowings on Nigeria's economic development was investigated in this study. After finding the co integration of variables using the Johansen approach, the investigation was carried out using the Augmented Dickey-Fuller (ADF) unit root test and an error correction mechanism. The findings of the error correction mechanism, which were applied to variables (external debt, internal debt, interest rate, & inflation), considered to be relevant determinants of development among other factors in Nigeria, show that inflation is not a factor influencing the country's level of development. In the model, changes in Nigeria's development are attributed to the interest rate, external debt, and internal debt.

As a result of its findings, this study indicates that government borrowings are important determinants of Nigeria's level of development and that both foreign and internal indebtedness has a positive association with Nigeria's level of development.

Policy Recommendations

- Because government borrowings are positively statistically significant to Nigeria's development, the government should direct borrowed monies to sectors/areas of the economy that will spur growth, such as education, health, industry, and transportation. The education and health sectors can be enhanced with enough funding and equipment; skill learning should be made mandatory beginning in secondary school. Our elites, politicians and their children should be forced to use our hospitals and school system in order to get it right. The construction of proper road networks, including railways, can strengthen the transportation sector. States should be permitted to build federal roads, and people should be permitted to build state roads and streets without being penalized. Government borrowing and spending should also be subject to checks and balances.

- To stimulate investment, the interest rate should be modest. At the very least, interest rates should not exceed single digits, borrowers should be able to obtain loans, and the repayment period should be extended so that consumers do not feel trapped each time they obtain a loan.

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