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Globalization and Economic Development in Nigeria: Evidence from Time Series Analysis (1981–2019)

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Abstract **Original Research Article**

Nigeria has been consistently plunged into economic recessions in recent times, and the quick way out of this is to diversify the economy, especially in the areas of the non-oil sector, youth development and empowerment, improved and mechanized agriculture/farming, as well as opening the economy to the world for the attraction of foreign direct investment. Accordingly, the main objective of this study is to investigate the impact of globalization on economic development in Nigeria. The study employed annual time series data. Economic development was measured by per capita gross domestic product, while the globalization index served as a proxy for economic globalization. The ordinary least squares econometric technique was used to establish the nexus between globalization and economic development in Nigeria. The findings revealed a positive and significant relationship between globalization and economic development in the estimated model. The study recommends that; the Nigerian economy should be diversified from crude oil and there should be prudent government spending and conducive and enabling environment for both the growth of other important sectors and improved domestic investment as strategies to give Nigeria a stand in the competitive global market; human capital development should be encouraged and hence avoid persistent brain drain to launch the country into the global village; and government should endeavor to maintain a stable and favorable macroeconomic policy that will drive domestic investment in the economy and this will make doing business in Nigeria a success towards a more vibrant globalized economy.

Keywords: Globalization, Economic development, Per capita GDP, Trade openness, Human capital.

INTRODUCTION

Globalization is not a new phenomenon, and its influence on economic, social, environmental, and political systems has been evident for decades (Baldwin and Forslid, 2000; Bhandari and Heshmati, 2005). It involves cross-border flows of goods, services, capital, technology, and labour, supported by reduced trade barriers and rapid knowledge diffusion. As developing countries deepen their openness, globalization's effects have attracted growing attention. While it creates opportunities for growth, it also raises concerns about inequality, poverty, environmental degradation, and cultural dominance. For Africa, broad-based economic diversification remains essential for building resilience and sustaining long-term development.

Despite its abundant natural, mineral, and human resources, Nigeria continues to experience slow economic development marked by high poverty, unemployment, and declining per capita income. Weak infrastructure electricity, water supply, transportation networks, and communication systems has constrained productivity, particularly in rural areas. Like many African countries, Nigeria relies heavily on primary commodity exports and struggles to attract sufficient foreign investment (Akpan, 2009; Olumola, 2006).

Since the 18th century, globalization has deepened economic and cultural integration through advances in transportation and information and communication technology. These changes have enabled the rapid movement of ideas, resources, and people, creating a highly interdependent global environment (Macro-trends, 2021). Globalization has boosted output through expanded markets, skilled labour access, and comparative advantage, while also encouraging capital flows, wider consumer choices, and international cooperation (Stobiersky, 2021).

The KOF Economic Globalization Index (2021) shows a rise in global integration from 37 percent in 1970 to 59 percent in 2019, alongside an average global GDP growth rate of 2 percent. However, globalization has also produced adverse effects, particularly in developing economies. Heightened competition can weaken small domestic firms, and global integration can transmit economic shocks rapidly, as seen during the 2008 financial crisis (Kuepper, 2021). Collins (2015) further notes that globalization has sometimes resulted in unfair trade practices, with G20 countries imposing over 1,200 restrictive measures since 2008.

Nigeria's recession between 2016 and 2017, marked by negative per capita GDP growth, renewed calls for diversification into non-oil sectors, youth empowerment, mechanized agriculture, and increased foreign investment. Although government initiatives such as the Economic Recovery and Growth Plan (ERGP) aimed to address these challenges, progress has been slow. The decline in agricultural employment following oil discovery contributed to rising unemployment and poverty. Per capita income fell to –1.8 percent in 2016, while unemployment averaged 27.4 percent between 2013 and 2017 (NBS, 2019)

Nigeria's integration into the global economy has been driven by ICT adoption, increased openness, and lower transport costs. World Bank (2021) data shows FDI inflows rising from $205 million in 1970 to $329.9 million in 2019, while trade openness increased from 10 percent in 1983 to 17.95 percent in 2019. Nigeria's globalization index also rose from 30 percent in 1970 to 45 percent in 2019 (Swiss Economic Institute, 2021). Yet, economic growth has remained unstable, fluctuating between –1.6 percent and 12.7 percent over recent decades. Human capital development has also progressed slowly, with the HDI increasing from 0.465 in 2005 to 0.539 in 2019 (UNDP, 2020)

Economic globalization is one of the three major dimensions of globalization alongside political and cultural integration (Salvatore, 2008) refers to the free movement of goods, capital, services, technology, and information, and the growing interdependence of national economies (Mohan, 2009). Contemporary globalization is shaped by technological advancement and market-driven reforms (James *et al.,* 2007), and encompasses the globalization of production, finance, markets, technology, institutions, and labour.

Several theoretical perspectives explain the relationship between globalization and development. Classical trade theory (Smith, 1776; Ricardo, 1817) emphasizes comparative advantage, while the Heckscher-Ohlin model highlights factor endowments. Neoclassical growth theory (Solow-Swan) stresses capital accumulation and technological progress, and endogenous growth models focus on innovation, human capital, and knowledge spillovers.

Empirical studies on globalization and economic development show mixed results. Some studies find positive effects of trade openness, financial integration, and FDI on growth (Feridun *et al.,* 2006; Maduka *et al.,* 2017), while others find negative or insignificant effects due to structural weaknesses, corruption, or insufficient capital inflows (Nwakanma & Ibe, 2014; Omolade *et al.,* 2013). Therefore, this study examines the impact of globalization on economic development in Nigeria, with particular emphasis on per capita GDP and human capital development.

MATERIALS AND METHODS

This study adopted an ex post facto (after the fact) research design. This design was chosen because the events under investigation had already occurred before the study was conducted. The researcher had no control over the independent variables, and inferences about the relationships among the variables were made without current interaction between the regressand and regressors (Ndiyo, 2005). A multiple regression analysis was employed, based on the ordinary least squares (OLS) econometric technique.

Following the theories and empirical literature reviewed, the study specified one equation linking globalization with per capita income. This model is rooted in classical trade theory, which posits that countries can gain and sustain development by devoting resources to the production of goods and services in which they have an economic advantage. The model is specified as:

$$PCGDPR = f(ECGL, HCDP, GEXP, GFCF, EXCHR)$$

This can be rewritten as:

$$PCGDPR = \alpha_0\ ECGL + \alpha_{1t} + \alpha_2 HCDP_t + \alpha_3 GEXP_t + \alpha_4 GFCF_t + \alpha_5 EXCHR_t + V$$

Where $\alpha_1 \ldots \alpha_5$ are the coefficients of the equation.

The a priori expectations are that $\alpha_1>0$, $\alpha_2>0$ $\alpha_3>0$, $\alpha_4>0$, $\alpha_5<0$.

The variables used in the study are defined as follows: Per capita gross domestic product growth rate (PCGDPR) is the growth rate of GDP per capita in real terms, calculated as GDP divided by population. It serves as a measure of economic development and welfare. Exchange rate (EXCHR) is measured as the nominal exchange rate between the Nigerian naira and the US dollar. Since foreign trade is mostly negotiated in foreign currencies, exchange rate fluctuations can affect per capita income either positively or negatively. Economic globalization index (ECGL) measures the economic, social, and political dimensions of globalization, and the data for Nigeria was obtained from the Swiss Institute of Technology in Zurich. Gross fixed capital formation (GFCF) represents gross domestic investment and reflects the process of adding to the existing stock of

capital in the economy. It is expected to positively influence per capita GDP. Government expenditure (GEXP) includes both recurrent and capital spending by the government. Theoretically, it has a positive effect on output and employment by shifting aggregate demand upward. Human capital development (HCDP) is measured using the human development index (HDI) in percent and is expected to positively impact economic development.

The study relied primarily on secondary data sourced from textbooks, magazines, journals, newspapers, and other relevant publications. Key sources included the Central Bank of Nigeria, the World Bank, the International Monetary Fund, the National Bureau of Statistics, and various internet-based databases.

Pre-estimation tests were conducted to validate the model. The normality test was used to determine whether the residuals or error term followed a normal distribution, symbolically expressed as μt~N(0,δ2)\mu_t \sim N(0, \delta^2). The Jarque–Bera (JB) test was employed, which is an asymptotic test based on OLS residuals. Visual inspection of the residual series was used to assess normality, and if the JB statistic was less than the critical value at the chosen significance level, the error term was considered normally distributed. Alternatively, if the p-value was less than 0.05, the null hypothesis of normality was rejected. The JB statistic is calculated as:

JB statistic is given by $n(\frac{S^2}{6} + \frac{(K-3)^2}{24})$

Where
S= Skewness which approaches zero (0) is the third moment.
K= Kurtosis which approaches three (3) is the fourth moment.
n= Sample size (Number of observations)
The mean of the residual (μ_t) = E(μ_t) is the first moment while the variance is the second moment.

The test for multicollinearity was conducted to check for linear relationships among the independent variables. Multicollinearity can make variables statistically insignificant by increasing the standard error, which lowers the t-value and raises the p-value. A correlation matrix was used to examine pairwise correlations among regressors. If any correlation coefficient exceeded 0.8, multicollinearity was considered present.

The study employed the classical OLS regression technique to determine the impact of globalization on economic development in Nigeria using time series data from 1981 to 2019. The OLS method was chosen because it is the Best Linear Unbiased Estimator (BLUE) and minimizes error.

The empirical findings were evaluated using three criteria: economic a priori criteria, statistical criteria, and econometric criteria. Economic a priori criteria refer to the expected signs and sizes of parameters based on economic theory. If estimates deviate from theoretical expectations, they are rejected unless justified. Statistical criteria (first-order tests) assess the reliability of parameter estimates using t-statistics, R-squared and adjusted R-squared values, and F-statistics. The t-test evaluates individual parameter significance, R-squared measures goodness of fit, and the F-statistic tests the overall significance of the regression model. Econometric criteria (second-order tests) investigate whether the assumptions of the econometric method are satisfied. These include tests for unbiasedness, consistency, and absence of autocorrelation, with the Durbin–Watson statistic used to detect autocorrelation.

The major limitation of the study was the non-availability of data on some important variables. However, this challenge was mitigated through extensive use of internet sources, CIA World Factbooks, statistical bulletins, financial statements, and publications from the National Bureau of Statistics, Transparency International, and the World Bank.

RESULTS AND DISCUSSION

This chapter presents the data analysis and interpretation of findings on the impact of globalization on economic development in Nigeria. The descriptive statistics of the variables used in the model are shown in Table 1. These include the mean, median, minimum, and maximum values, standard deviation, skewness, kurtosis, and the Jarque-Bera (JB) statistic. The results indicate that all series display a high level of consistency, as their means and medians fall within the range of minimum and maximum values. However, the standard deviations are relatively high, suggesting significant dispersion of actual data from their means. The skewness values are moderate and tend toward zero, while the JB probabilities are generally low, indicating acceptance of the hypothesis of normal distribution.

Table 1: Descriptive Statistics

	PCGDPR	ECGL	GEXP	GFCF	HCDP	EXCHR
Mean	0.837949	50.35744	2.369872	36.38538	29.05297	91.28205
Median	1.210000	52.51000	0.884000	34.11000	24.60000	102.1000
Maximum	30.36000	58.45000	14.40000	89.38000	56.20000	306.2000
Minimum	-15.45000	39.71000	-5.979000	14.90000	13.50000	0.600000
Std. Dev.	7.135049	6.111892	4.013478	19.05289	12.56472	87.57366
Skewness	1.280000	-0.479788	1.201126	1.056907	0.539104	0.718648

	PCGDPR	ECGL	GEXP	GFCF	HCDP	EXCHR
Kurtosis	9.435323	1.870263	4.822651	3.826486	1.934334	2.790350
Jarque-Bera	77.94633	3.570274	14.77591	8.370844	3.734538	3.428385
Probability	0.000000	0.167774	0.000619	0.015216	0.154545	0.180109
Sum	32.68000	1963.940	92.42500	1419.030	1133.066	3560.000
Sum Sq. Dev.	1934.539	1419.498	612.1042	13794.47	5999.143	291427.5
Observations	39	39	39	39	39	39

The correlation matrix in Table 2 reveals several high pairwise correlations. To avoid multicollinearity, highly correlated variables were not included on the same side of the regression equation.

Table 2: Matrix of correlation

	PCGDPR	ECGL	GEXP	GFCF	HCDP	EXCHR
PCGDPR	1	0.385305	0.078880	-0.450480	0.311893	0.270718
ECGL	0.385305	1	0.441031	-0.830786	0.792145	0.740106
GEXP	0.078880	0.441031	1	-0.443281	0.583711	0.724689
GFCF	-0.450480	-0.830786	-0.443281	1	-0.824016	-0.765900
HCDP	0.311893	0.792145	0.583711	-0.824016	1	0.906962
EXCHR	0.270718	0.740106	0.724689	-0.765900	0.906962	1

The regression results are presented in Table 3. The estimated coefficient of the log of globalization (LOGECGL) is positive and statistically significant, indicating a direct relationship between globalization and economic development. A 1 percent increase in economic globalization leads to approximately a 12.99 percent increase in per capita GDP in Nigeria.

Table 3: Regression Results; Dependent Variable: PCGDPR

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-85.70076	83.19337	-1.030139	0.3104
LOG(ECGL)	12.98577	05.62509	2.308544	0.0003
GEXP	0.198456	0.031202	6.360360	0.0000
LOG(GFCF)	1.500058	7.032205	0.213313	0.8324
LOG(HCDP)	10.10736	12.15470	0.831559	0.4116
EXCHR	-0.023324	0.041499	-0.562044	0.5779
R-squared	0.788994			
Adjusted R-squared	0.766114			
F-statistic	12.53803	Durbin-Watson stat		2.354846

Government expenditure (GEXP) has a positive and statistically significant coefficient, implying that a 1 percent increase in government spending leads to a 0.19 percent increase in per capita GDP. Gross fixed capital formation (LOGGFCF) also shows a positive relationship with per capita GDP, but it is statistically insignificant. Human capital development (LOGHCDP) has a positive coefficient of 10.10, consistent with theoretical expectations, but is also statistically insignificant. Exchange rate (EXCHR) has a negative coefficient, indicating that a 1 percent increase in exchange rate leads to a 0.02 percent decrease in per capita GDP, though this result is statistically insignificant.

The adjusted R-squared value of 0.766114 indicates that approximately 77 percent of the variation in per capita GDP is explained by the model. The F-statistic of 12.538 exceeds the critical value of 3.65, confirming the overall significance of the model. The Durbin-Watson statistic of 2.35 suggests no autocorrelation in the residuals.

Figures 1 and 2 present the CUSUM and CUSUMSQ stability tests. Both figures show that the model is stable over the study period, as the trend lines remain within the 5% significance bounds.

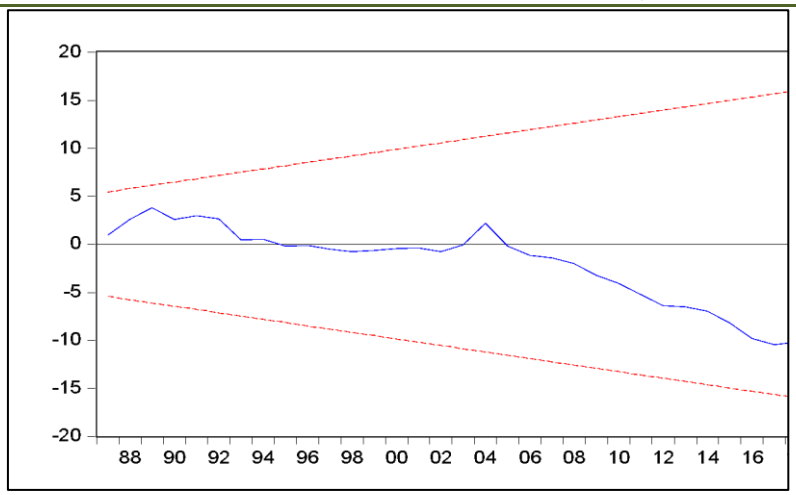

Fig. 1: Globalization and economic development equation CUSUM

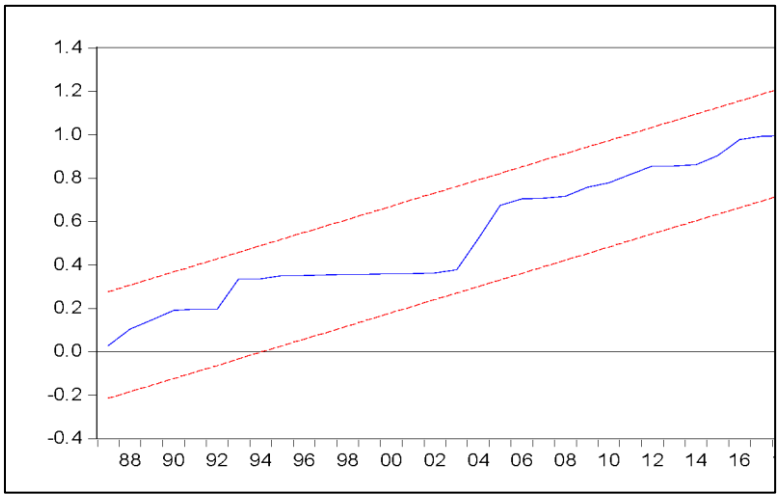

Fig. 2: Globalization and economic development equation CUSUMSQ

The findings confirm that globalization has a significant positive impact on economic development in Nigeria. This aligns with the studies of Maduka, Madichie, and Eze (2017), and Esu and Udonwa (2013), who found that trade openness, financial integration, and foreign direct investment positively affect economic growth. The study suggests that economic development can be achieved through deliberate efforts to globalize the economy, promote industrialization in the non-oil sector, deepen technological adoption, and sustain improvements in agriculture.

The adjusted R-squared and Durbin-Watson statistics further validate the model's reliability, indicating high explanatory power and absence of serial correlation. The study concludes that integrating Nigeria more fully into the global economy offers a viable path to sustainable development.

CONCLUSION

This study examined the impact of globalization on economic development in Nigeria from 1981 to 2019, using the classical ordinary least squares technique. The objectives were to assess the influence of globalization and human capital on economic development. Several empirical and theoretical literatures were reviewed, and the model estimation revealed that Nigeria's economic challenges are partly due to insufficient globalization. The results showed a positive relationship between the globalization index and per capita GDP growth, indicating that globalization is a key driver of development. Similarly, human capital development was found to positively influence per capita GDP, underscoring the need for strategic investment in human resources to position Nigeria within the global economy. Stability tests using CUSUM and CUSUMSQ confirmed that the model variables were stable throughout the study period, and the adjusted R-squared values demonstrated strong explanatory power. The Durbin-Watson statistic indicated no autocorrelation, validating the reliability of the model. Based on these findings, the study concludes that low globalization indices contribute to Nigeria's slow economic growth, persistent poverty, and recurring recessions. Policymakers must implement strategies that stabilize macroeconomic variables and promote inclusive development. The study recommends diversifying the economy beyond crude oil, ensuring prudent government spending, and creating an enabling

environment for domestic investment. Human capital development should be prioritized to curb brain drain and integrate Nigeria into the global economy. Stable macroeconomic policies and targeted monetary tools should be used to manage exchange rates and support export diversification, particularly in the manufacturing sector, to enhance foreign exchange inflows and drive sustainable development.

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