Assessing the Impact of Foreign Aid on Economic Growth in Nigeria

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Abstract

This study explores the relationship between Official Development Assistance (ODA) and economic growth in Nigeria, operationally defined by GDP per capita, from 1977 to 2022. The study employs two statistical tests: Linear Regression T-Test and Partial Correlation Analysis to assess the direct impact of ODA on GDP per capita while controlling for factors such as inflation, exports, imports, Foreign Direct Investment (FDI), and population. The findings reveal that while the initial linear regression indicates a positive correlation with a statistically significant p-value, the partial correlation analysis shows no significant relationship between ODA and GDP per capita when accounting for other variables. The study concludes that foreign aid alone is insufficient for long-term economic development in Nigeria. This research distinguishes itself from prior studies by utilizing more recent data from the World Bank, while much of the existing literature relies on outdated data, often from Nigerian government sources. Nevertheless, the results align with prior studies, suggesting that aid often fails to foster sustainable growth, due to mismanagement, weak institutions, and socio-political instability. For future research, advanced models that incorporate social and political variables may produce results that more accurately explains the complexity of Nigeria's economic situation.

Introduction

For the past century, developed nations have been giving foreign aid to the developing world, hoping to help them assimilate into the new world of globalization and economic cooperation. Many of these countries are still receiving aid to this day, totaling billions just in the past decade. Such large amounts of aid begs the question whether the capital has been well used to fund development and promote economic growth. Nigeria is a sub-saharan country in Africa that performs better than its neighbors, and has received over 64 billion dollars of aid from 1960-2022.[1] However these improvements are not attributable to real growth and development, rather, a high birth rate and an increasing population, a common characteristic of developing countries. Nigeria is 171st in real GDP per capita, 161st in human development, and 131st in ease of doing business.[2][3][4] Despite the yearly inflow of hundreds of millions of dollars, Nigeria has failed to make positive changes regarding government policy.

I will examine statistical studies on the relationship between foreign aid and economic growth in Nigeria and NGO/state government data, as well as conduct literature review. My findings will be compiled with existing information to determine the effects of foreign development aid in the sectors of education and healthcare on economic growth in the past few decades. Additionally, I will posit solutions that may ameliorate the harsh Nigerian economic condition, and perhaps improve the efficacy of foreign aid.

[1] World Bank Data.
[2] The World Factbook 2023.
[3] UN Development Programme Human Development Index 2024.
[4] World Bank Ease Of Doing Business Rankings 2019.

Literature Review

On the topic of the effects of foreign aid on Nigerian economic growth, many studies have been done, with various techniques, statistical tests, and variables being used. Second, the majority of studies have been done by Nigerians, specifically Nigerian professors who may have slight biases. Lastly, data for these studies have been pulled from sources that may have slight biases as well, such as the Bureau of Statistics or the state-owned Central Bank of Nigeria.

A 2018 study by Fashina and colleagues[5] investigates the impact of foreign aid and human capital on Nigeria's economic growth using the Engle-Granger Cointegration Test and the Vector Error Correction Model (VECM). The Engle-Granger test confirms the presence of a long-run relationship among aid, human capital, and growth variables, ensuring the results are not spurious. The Medicine Model shows that while aid initially promotes growth, excessive aid beyond an optimal point leads to diminishing returns. The VECM analysis highlights that shocks in human capital, specifically government spending on education and healthcare, significantly affect economic growth, whereas aid shocks have minimal long-term impact. Additionally, the study finds bi-directional causality between domestic investment and growth, and unidirectional causality from foreign aid and growth to education. The results emphasize that sustainable growth in Nigeria depends more on education and healthcare investments, FDI, and trade openness than on continuous aid inflows.

In a 2014 study conducted by Kolawole and colleagues[6], they explored the relationship between ODA, FDI, and economic growth in Nigeria from 1980 to 2011. Control variables factored into the study include real GDP, domestic investment, exports, and imports. Using Augmented Dickey-Fuller tests, Johansen cointegration, Granger causality, and Error Correction Models, the study found no causality between any of the variables. FDI showed a negative impact on growth, while ODA had no significant effect on Nigeria's economic performance. The study identifies that domestic investment and exports positively impact real growth, whereas imports negatively affect it. The ECM reveals that the model returns to equilibrium over time, suggesting a feedback effect from the long-run relationship to short-term dynamics. The findings imply that much of the foreign assistance intended for infrastructure is either diverted or misused, failing to promote real economic growth.

Eze and colleagues in a 2020 study[7] used data from 1995 to 2017 and applied the Canonical Cointegrating Regression procedure, determining that education and health aid was positive, and industry and infrastructure aid was harmful to the economy. That same year, in a study conducted by Duru and others,[8] they examined the impact of foreign aid on Nigeria's economic growth from 1984 to 2017 using the Autoregressive Distributed Lag Bounds Test, using capital, labor, oil revenue, institutions, and domestic savings as control variables. The results indicated that there was no causality between foreign aid and economic growth, instead, the effectiveness of foreign aid was found to be contingent on the quality of the macroeconomic policy environment.

On the topic of foreign aid in Nigeria, various studies have been conducted with different statistical tests, control variables, and also variations in the operational definition of "economic

[5] Fashina et. al. 2018.
[6] Kolawole et. al. 2014.
[7] Eze et. al. 2020.
[8] Duru et. al. 2020.

growth," which can be measured in many ways. Thus, these tests will inherently yield different results. My approach will be among these studies, using a different approach to come to the same conclusion.

One gap in the current literature is that there have not been studies that use recent data, nor have there been studies that use partial correlation. Additionally, many of these studies employ few control variables, many not as significant as others, which may lead to less accurate results.

Methodology

This study investigates the relationship between ODA and GDP per capita, while controlling for several economic factors, including imports, exports, Foreign Direct Investment, inflation, and population. The analysis utilizes data sourced from the World Bank, covering the period from 1977 to 2022.

First, to confirm that there was positive correlation between ODA and GDP per capita, a simple Linear Regression T Test was conducted. With those results in mind, a Partial Correlation Analysis was conducted to control for the effects of the other economic variables. This allows for the isolation of the relationship between two variables by removing the influence of other covariates. In this case, the partial correlation between ODA and GDP per capita was calculated after controlling for inflation, exports, imports, FDI, and population.

Results

Constant	Regression Coefficient	Standard Error	Correlation Coefficient	T-statistic	P-value
1195.075	1.71	729.21	+.450	3.341	.002

Variable	Regression Coefficient	Standard Error	P-value	Partial Correlation Coefficient	Overall P-value
ODA	1.71	729.21	.002	-.007	.963
Imports	-110.23	25.33	.008		
Exports	220.14	48.12	.005		
FDI	35.67	14.56	.060		
Inflation	-32.56	13.45	.022		
Population	10.56	3.12	.050		

The Linear Regression T Test between ODA and GDP per capita produced a statistically significant p-value of under 0.05, however the two variables were moderately correlated. The relatively low standard error as shown by the relatively high t-statistic reveals that the relationship between ODA and GDP per capita are not due to random chance alone.

As for the Partial Correlation Analysis, the partial correlation coefficient suggests no relationship between ODA and GDP per capita, accounting for the 5 other variables. The high p-value further corroborates this result, indicating that any association found previously was due to other variables or that it was negligible and likely due to chance.

Discussion

This study has several limitations that should be considered when interpreting the results. First, the variables have been rounded slightly, which could introduce minor inaccuracies. Additionally, multicollinearity among control variables may have inflated standard errors, making it difficult to precisely isolate the individual impact of each variable on ODA. The study also focuses on a limited set of economic variables, leaving out potentially important political, social, and environmental factors that may influence GDP per capita.

Moreover, the assumption of linear relationships between variables might not capture the complexity of real-world interactions. Although the use of partial correlation helps isolate the relationship between ODA and GDP per capita by controlling for additional variables, this approach does not imply causality. Future research could address these limitations by incorporating additional variables, testing nonlinear models, or using more robust methods, such as time-series or panel data analysis, to improve the reliability and applicability of the findings.

Conclusion

The findings of this study suggest that ODA has a limited or negligible impact on Nigeria's economic growth, as measured by GDP per capita. Although the initial linear regression test indicated a positive correlation between ODA and GDP per capita with a statistically significant p-value, further analysis through partial correlation, controlling for inflation, exports, imports, FDI, and population, revealed that this relationship was insignificant. These results corroborate the consensus, suggesting that aid is often unable to drive sustainable economic development, likely due to mismanagement, institutional weaknesses, or dependency on external funding.

Several factors may contribute to this, such as poor governance, corruption, ineffective policy frameworks, and inefficient allocation of resources. Additionally, Nigeria's high population growth and socio-political instability further complicate the country's capacity to utilize aid effectively. Future research could expand on these findings by employing more sophisticated models, such as time-series analysis or panel data methods, to capture the complex dynamics between aid and growth over time. Including additional political, social, and environmental variables in the analysis would also provide a more comprehensive understanding of how different factors interact to influence the effectiveness of aid in Nigeria. Ultimately, while foreign aid has the potential to catalyze economic growth, it must be part of a broader strategy that addresses the root causes of underdevelopment and promotes long-term sustainability.

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