ENUGU STATE UNIVERSITY OF SCIENCE & TECHNOLOGY

JOURNAL OF SOCIAL SCIENCES & HUMANITIES

Volume 9
Number 2,
2024

PUBLISHED BY
Faculty of Social Sciences,
Enugu State University of Science And Technology

Foreign Aid, Donor Financing and Literacy Rate in Nigeria: Evidence from Error Correction and Granger Causality Models

Eze, A. E*, Kalu C.U, Okeyika, K.O & Mgbemena, O.O

*Corresponding Author: ae.eze@unizik.edu.ng

Abstract

While debates continues on the best way to deliver assistance, there is little doubt that Nigeria will continue to need significant aid to achieve development goals. Moreover, despite criticisms, aids has had many successes in Africa and Nigeria. This paper examined foreign aid, donor financing and literacy rate. This paper is anchored on the human capital theory and utilized the error correction model and the Granger causality approached over the period of 1985 to 2023. The variables of the paper are foreign aid, gross fixed capital formation, exchange rate, and inflation. The data for these variables were sourced from the Central Bank of Nigeria and National Bureau of Statistics (NBS). The result showed that foreign aid has a positive but insignificant impact on human capital development in Nigeria (P-values of t – statistics (0.058663) >Sig-value (0.005); trace statistic and the Max-eigenvalue statistic of Johansen co-integration test indicates 2 co-integrating equation(s) at the 5 percent level of significance indicating that there is a long-run relationship between foreign aid and literacy rate in Nigeria; also there is a uni-directional relationship between foreign aid and literacy rate. The paper recommended among others a policy framework that would guide against the country's dependence on foreign aid beyond a point that may not be healthy for the economy.

Keywords: Exchange rate, foreign aid, gross fixed capital formation, inflation, literacy rate, Nigeria

JEL Codes:

1. Introduction

Aid has been coming to Africa for many purposes only one of which is development. Donor use aid to advance their values, their commercial interests, their cultural aspirations and their diplomatic and political objectives (World Bank, 2000). Aid has also served development goals. It has always being used to raise the standard of living and to reduce poverty in poor countries like Nigeria. Aid is also used to fund investment projects- roads, ports, public utilities and communication facilities, vaccination programmes and the expansion of schools and health clinics. It has helped to sustain essential reforms, including trade liberalization, that have adverse effects on fiscal revenue. Foreign aid can take various forms. Some aids can take the nature of sharing technical expertise while others are made up of out-and-out grants of money, and loans at concessional charges channeled via through bilateral and multilateral global financial institutions. Foreign aid is any monetary, material or human assistance received by a recipient country from a donor country; thus, it can be in the form of money or compassion such as medical practitioners, lawyers, rescuers and engineers. It could also be in the form of materials which include medications, food, building materials, weaponry and the likes. Almost every developed nation has an aid agency through which it provides help to poor countries of the world. One of such agencies that gives billions of dollars to poor countries across the globe as aid is the United States Aid for International Development (USAID). These poor countries, mainly in Africa, Latin America and Asia receive aid from the developed Western Europe and Northern America, and international organizations such as the United Nations, World Bank,

IMF, European Union, among others to tackle one developmental need or the other (NOUN, 2015).

Donors are crucial for building capacities in certain institutions notably the central bank and ministries of finance. Those institutions, agencies and organizations that donates funds for development purposes are called donors. They consists of bilateral and multilateral agencies as well as non-governmental organizations at both domestic and international level. Maximizing funding opportunities through grant-seeking strategies is essential for organizations striving to fulfill corporate missions and objectives effectively. The donors could also be public sector institutions, government agencies, both at the national, subnational and local governments. These funders often have larger budgets and can provide substantial grants. Private sector funders encompasses business corporations, and foundations. It may offer grants or corporate social responsibilities (CSR). Individual donors involves philanthropists and crowd-funding sources. It may provide smaller individual donations. The different types of funding include: Core funding –usually flexible and can be used for the non-governmental organizations general operations and for organizational developments, often referred to as unrestricted funding. Project funding earmarked for a particular initiative, programme or project. It is often more restricted and tied to specific goal. Capacity building- grants supporting a non-governmental organization in improving its internal capacity, infrastructure and skills and emergency funding-meant for addressing immediate and unforeseen crisis or emergency. According to its proponents, foreign aid can relieve credit shortages faced by the governments. This will allow them to invest in the development of public infrastructure and human capital, which will increase growth. Recipient countries use resources obtained from foreign aid to cover the saving gap and the foreign exchange gap (Akintoye & Daniel, 2021). Also, if the effect of aid on domestic savings is positive, then it can spur growth. Otherwise, aid will probably be detrimental to the economic growth of developing countries. Many scholars argue that foreign aid works better in countries with good policies. This means that for countries with good fiscal, monetary, institutional quality and trade policies, foreign aid promotes growth and development (Isiyaku, Zasha & Suleiman, 2022).

Human capital development involves the transformation of the population into productive labour force capable of driving the process of economic development. Essentially, it focuses on prioritizing investments in healthcare and education as core indices of human development in order to improve the productive capacity of relatively unskilled individuals to enable them contribute meaningfully to the rapid and sustained growth of the economy (Eze, Okpara & Madichie, 2020). According to its proponents, foreign aid can relieve credit shortages faced by the governments. This will allow them to invest in the development of public infrastructure and human capital, which will increase growth. Recipient countries use resources obtained from foreign aid to cover the saving gap and the foreign exchange gap (Akintoye & Daniel, 2021). Also, if the effect of aid on domestic savings is positive, then it can spur growth. Otherwise, aid will probably be detrimental to the economic growth of developing countries. Many scholars argue that foreign aid works better in countries with good policies. This means that for countries with good fiscal, monetary, institutional quality and trade policies, foreign aid promotes growth and development (Isiyaku, Zasha & Suleiman, 2022).

Given that foreign aid comes in different forms (e.g. social and economic infrastructure aid, industry aid, etc.), neglecting the issue of disaggregation in its research and evaluation process, does not portray a clear picture of aid performances, and most importantly, leads to misleading policy recommendations. Disaggregation of aid matters for deriving robust conclusions on aid effectiveness on an economy. Previous studies (Obijiaku, 2015; Isiaka & Makinde, 2020)

concluded that foreign aid is harmful to economic growth in Nigeria, but they did not specify which aid type that was harmful and same with studies that concluded otherwise, such as Michiel, 2022). Thus, any policy decision made on these findings can never be informed because foreign aid comes in many forms. At the empirical level, some non-Nigerian authors have also stated the importance of aid disaggregation on the basis that different types of aid exert different effects on the recipient economies (Gyimah-Brempong & Asiedu, 2018; Ozigbo & Ewubare, 2019), but to the best of our knowledge, only Eze, Okpara and Madichie, (2020) made an attempt to disaggregate aid but classified foreign aid broadly into bilateral and multilateral aid for Nigeria. This paper seeks to establish the relationship between foreign aid and human capital development using literacy rate as a proxy. The main objective of this paper is to examine foreign aid, donor financing and human capital development in Nigeria. The specific objectives are to:

- Determine the impact of foreign aids, gross fixed capital formation and exchange rate on literacy rate in Nigeria.
- Investigate the long-run relationship between foreign aids, gross fixed capital formation, exchange rate and literacy rate in Nigeria
- Analyze the causality between foreign aids, gross fixed capital formation and literacy rate in Nigeria.

The rest of the paper is structured as follows: Section 1 presents the introductory background; section 2 is on the empirical literature review and section 3 presents the methodology. Section 4 presents the estimation results and analysis in line with the objectives of this paper. Section 5 is on conclusion and policy implication of the findings.

2. Empirical Literature Review

This section presents the few of the related empirical studies on the subject matter. Obu-Cann, Fosu and Bondzie, (2022) examined the impact of foreign aid inflow on economic growth in Ghana. The policy index is exogenously determined and it is given as the weighted average of budget surplus (as a proxy for fiscal policy), inflation (as a proxy for monetary policy) and import and export as a share of GDP (as a proxy for index of trade) on real GDP for the period 1975 to 2010. Ordinary Least Square techniques was adopted in the study and used Augmented Dickey-Fuller Unit Root Test, co integration test, granger causality test, ECM to estimates data employed. The study indicated that foreign aid has a positive but insignificant effect on economic growth of Ghana. The paper suggested that donor agencies and the government must come up with policies and strategies that can lead to effective and efficient utilization of the aid funds in Ghana.

Olowoniyi, (2022) examined the impact of foreign aid on female human capital formation in Nigeria. The study adopted the survey research method, using a random sample size of 240 females engaged in five sectors; academia (senior lecturers), medical profession (doctors and nurses), entrepreneurs (business owners), students (secondary/tertiary) and those in politics and governance. The findings show that there is no significant impact of foreign aid on human capital formation in Nigeria.

Fasanya and Onakoya, (2022) analyzed the impact of foreign aid on economic growth in Nigeria during the period of 1987-2019. The variables used were the growth rate of GDP (GDPGR), growth rate of population (POPGR which is a proxy for the growth rate of labour force), investment/GDP ratio represents the growth rate of domestic capital stock and AID is the foreign aid. The rate of inflation captures the monetary policy tool and government expenditure is used to capture the fiscal policy. The methods of data analysis were unit root

test and error correction model. The findings show that aid flows has significant impact on economic growth in Nigeria: domestic investment increased in response to aid flows and population growth has no significant effect on aid flows. Aid flows also provides free resources to increase domestic investment, thus confirming the aid-policy growth hypothesis.
Akintoye and Daniel, (2021) examined the effect of foreign aids on economic development in Nigeria. The variables used include foreign aid and real gross domestic product. The ordinary least square (OLS) was used to measure effect of foreign aid to government expenditure, while coefficient of correlation is used to measure the degree of relationship between them, and the result of the findings show that there is insignificant relationship between foreign aid and the Nigeria Economy.

3. Methodology

3.1 Theoretical Framework

This paper is anchored on the human capital theory that was postulated by Paul Romer (1986), which emphasizes how education increases the productivity and efficiency of workers by increasing the level of their cognitive skills. In the words of Paul Romer growth model, economic growth is a function of four economic inputs namely: Y = A F (K, L, H)

Where Y = Total national product; = the quantity of physical capital used; L = the quantity of labour used; A = state of technology and H = human capital.

3.2 Model Specification

This paper modified the human capital theory to explore the relationship between foreign aid, gross fixed capital formation and exchange rate in Nigeria. Thus, the model of this paper in a regression and functional form is shown as:

LITR =f (AIDS, GFCF, EXCHR, INFLA) (3.1)

Where LITR is literacy rate), while AIDS is foreign aids, GFCF is gross fixed capital formation, EXCHR is exchange rate, INFLA is inflation rate. In a linear function, it is represented as follows: $HCD = \beta_0 + \beta_1 AIDS + \beta_2 GFCF + \beta_3 EXCHR + \beta_5 INFLA + \mu t$ (3.2)

Where: $\beta 0$ = Constant term, β_1 to β_5 = Regression coefficient of independent variables and μt = error term. To reduce the outliers among the variables, all variables will be expressed in logarithmic form. $LogHCD = \beta_0 + \beta_1 LogAIDS + \beta_2 LogGFCF + \beta_3 EXCHR – \beta_5 INFLA + \mu t$ (3.3)

The theoretical and empirical postulation of the variables are as follows: $\beta_1>0$; $\beta 2>0$; $\beta_3<0>0$, $\beta_4 <0$. This implies that a positive relationship exist between literacy rate and foreign aid; a positive between literacy rate and capital formation; an indeterminate relationship between literacy rate and exchange rate and a negative relationship between literacy rate and inflation rate. The error correction model of equation 3.3 is presented in equation 3.4 as $\Delta LogHCD_{t-1} = \delta 0 + \delta 1 \Delta AIDS_{t-1} + \delta 1 \Delta LogGFCF_{t-1} + \delta 1 \Delta LITERACY_{t-1} - \delta 1 \Delta EXCHR_{t-1} – \delta 1 \Delta INFLA_{t-1} + \varepsilon ct_{-1}$

(3.4)

3.3 Estimation technique

The starting point of an empirical analysis of this nature usually begins with the investigation of the properties of the time series. That is, a test of whether the variables in series are stationary at level or at first difference using unit root test. Many economic variables are non-stationary because of shocks, changes and fluctuations over time. For this reason, it is important to conduct preliminary diagnostics tests on the properties of the variables to avoid spurious results and unreliable predictions. Thus, the Augmented Dickey Fuller (ADF) test and Philiph Perron Statistics were conducted to test for unit root. The Augmented Dickey Fuller (ADF) Philiph

Perron Statistics tests were chosen in this study because the statistic is embedded in e-views computer software that make easy and simple to compute.

$Y_t = a + Y_t + \beta\ Y_{t-1} \sum_{j=i}^{k} \beta \nabla Y^i_{t-1}$

(3.4)

$Y_t = a + \beta\ Y_{t-1} + \sum_{j=i}^{k} \beta \nabla Y^i_{t-1}$

(3.5)

Where; Δ = first difference operator, t = the trend variable, Y_t = The variable under consideration, εt = a white noise error term. Thus, the null hypothesis for the ADF unit root test is: H0**:** = 0 (presence of unit root) and alternative hypothesis is H1**:** $\neq$ 0 (absence of unit root).

One of the methods researchers normally use to investigate the cause-effect relationship between variables is through descriptive statistics. Descriptive statistics is that type of statistics that involves organizing, summarizing and presenting data in a meaningful form or usable format. Thus, in this research simple averages (i.e. mean), kurtosis, skewedness, Jarque-Bera, and more were employed to analyze the trends of the variables used in this study between 1980 and 2018. The Jacques-Bera statistics is used in this study check the model is normal distributed. Normality test is done to check if the residuals of the error term have a normal distribution. Normality test is conducted using Jacques-Bera (JB) test. It is statistical instrument that tests both kurtosis and skewedness.

The co-integration (Johansen, 1995) deals with the methodology of modeling non-stationary time series variables. According to Maddala (1992) and Iyeli (2010) the theory of co-integration explains how to study the interrelationship between the long-run trends in economic variables. Basically, the idea of co-integration tests on the study that even though two time series may not themselves be stationary, a linear combination of the two non-stationary time series may be stationary in long run. This study adopts the Johansen co-integration statistic to test the existence of a long-term relationship among the variables in the six model

Although regression analysis deals with the dependence of one variable on the other, it does not necessarily imply causation. In other words, the existence of a relationship between variables does not prove causality or the direction of influence (Gujarati 2004). The essence of causality analysis, using the Granger causality test, is to ascertain whether a causal relationship exists between variables. Although regression analysis deals with the dependence of one variable on the other, it does not necessarily imply causation. In other words, the existence of a relationship between variables does not prove causality or the direction of influence (Gujarati 2004). The essence of causality analysis, using the Granger causality test, is to ascertain whether a causal relationship exists between variables.

$$\Delta HCD_t = \beta_0 + \sum_{t-2}^{n} B_2\ AIDS_{t-2} + \sum_{t-3}^{n} B_3\ GFCF_{t-1} + \sum_{t-4}^{n} B_4\ LITERACY_{t-4} + \sum_{t-4}^{n} B_4\ EXCHR_{t-4} - \sum_{t-5}^{n} B_5\ INFLA_{t-5} + \mu_t$$

$$\Delta AIDS_t = \beta_0 + \sum_{t-2}^{n} B_2 HCD_{t-2} + \sum_{t-3}^{n} B_3\ GFCF_{t-1} + \sum_{t-4}^{n} B_4\ LITERACY_{t-4} + \sum_{t-4}^{n} B_4\ EXCHR_{t-4} - \sum_{t-5}^{n} B_5\ INFLA_{t-5} + \mu_t$$

$$\Delta GFCF_t = \beta_0 + \sum_{t-2}^{n} B_2\, AIDS_{t-2} + \sum_{t-3}^{n} B_3\, HCD_{t-1} + \sum_{t-4}^{n} B_4\, LITERACY_{t-4} + \sum_{t-4}^{n} B_4\, EXCHR_{t-4} - \sum_{t-5}^{n} B_5\, INFLA_{t-5} + \mu_t$$

$$\Delta EXCHR_t = \beta_0 + \sum_{t-2}^{n} B_2\, AIDS_{t-2} + \sum_{t-3}^{n} B_3\, GFCF_{t-1} + \sum_{t-4}^{n} B_4\, LITERACY_{t-4} + \sum_{t-4}^{n} B_4 HCD_{t-4} - \sum_{t-5}^{n} B_5\, INFLA_{t-5} + \mu_t$$

$$\Delta INFLA_t = \beta_0 + \sum_{t-2}^{n} B_2\, AIDS_{t-2} + \sum_{t-3}^{n} B_3\, GFCF_{t-1} + \sum_{t-4}^{n} B_4\, LITERACY_{t-4} + \sum_{t-4}^{n} B_4\, EXCHR_{t-4} - \sum_{t-5}^{n} B_5\, HCD_{t-5} + \mu_t$$

3.3.1 Post-estimation Test

Ramsey Reset

The Ramsey Reset statistic is a test designed to checks whether the model of the study suffers model specification error. A model that is free from model specification error means that core variables are included in the model, does not include superfluous variables, the functional form of the model was very well chosen, there is no error of measurement in the regressand and regressor.

Breuch-Godfrey Serial Correlation LM Test

The Breuch-Godfrey Serial Correlation LM test was used to identify whether the model suffer from autocorrelation problem. The autocorrelation problem violates of ordinary least square assumption that says there is no correlation among error terms of different observation.

3.4 Data and Sources

The data for this paper include, foreign aids (AIDS), gross fixed capital formation (GFCF), and literacy rate (LITR), exchange rate (EXCHR) and inflation rate (INFLA) for the period of 1985 to 2023. All the variables were sourced from Central Bank of Nigeria's (CBN) statistical bulletin for various years. The econometric software used is EView 12 version.

4. Results, Discussion and Analysis

4.1 Descriptive Statistics of the Variables

The descriptive results of the variables are presented in Table 4.1

	LITR	AIDS	GFCF	EXCHR	INFLA
Mean	1552587.	1.95E+09	2638719.	94.66228	20.21579
Median	17517.37	6.17E+08	1526861.	57.37225	12.65000
Maximum	30916198	2.20E+10	6702782.	342.5430	72.80000
Minimum	204.2600	109886.1	7502.500	0.546400	5.400000
Std. Dev.	5140576.	3.97E+09	2602401.	100.3847	16.75163
Skewness	5.129759	3.884062	0.333800	0.861473	1.511667
Kurtosis	29.59552	19.01725	1.357430	2.792833	4.458459
Jarque-Bera	1286.584	501.7522	4.977564	4.768150	17.84045
Probability	0.000000	0.000000	0.083011	0.092174	0.000134

Sum	58998316	7.39E+10	1.00E+08	3597.167	768.2000
Sum Sq. Dev.	9.78E+14	5.85E+20	2.51E+14	372851.9	10382.83
Observations	38	38	38	38	38

Source: EView 12

The table shows descriptive statistics of the variables. In the model established in the study, there is one dependent variable and five independent variables. These variables consist of foreign aids (AIDS), gross fixed capital formation (GFCF), literacy rate (LITR), Exchange rate (EXCHR) and Inflation rate (INFLA) respectively. The mean of Human capital development (HCD) was 1552587.0, the median was 17517.37, maximum was 30916198.09, minimum was 204.2600, and sum of the variable was 58998316.00 respectively. The mean of Foreign aids (AIDS) was 19500000, the median was 61700000, maximum was 220000000, minimum was 109886.1, and sum of the variable was 739000000000 respectively. The mean of Gross fixed capital formation (GFCF) was 2638719.00, the median was 152681.23, maximum was 6702782.88, minimum was 7502.500, and sum of the variable was 10000000000 respectively. The mean of Literacy rate (LITR) was 33.86026, the median was 32.935000, maximum was 56.21000, minimum was 23.000000, and sum of the variable was 1286.690 respectively. The mean of exchange rate (EXCHR) was 94.66228, the median was 57.37225, maximum was 56.21000, minimum was 23.000000 and sum of the variable was 3597.167 respectively. The mean of inflation rate (INFLA) was 20.21579, the median was 12.65000, maximum was 72.800000, minimum was 5.400000, and sum of the variable was 768.20000 respectively. Table 4.2 presents the correlation matrix.

Table 4. 2: Result of Correlation Matrix

	LITR	AIDS	GFCF	EXCHR	INFLA
LITR	1.000000	0.862005	0.657194	0.571210	0.769320
AIDS	0.862005	1.000000	0.334235	0.337649	0.172339
GFCF	0.657194	0.334235	1.000000	0.885917	0.218999
EXCHR	0.571210	0.337649	0.885917	1.000000	0.249352
INFLA	0.769320	0.172339	0.218999	0.249352	1.000000

There is no linear relationship between Human capital development (HCD) and Exchange rate (EXCHR) (0.571210). There is no linear relationship between Human capital development (HCD) and Inflation rate (INFLA) (0.769320). This test presented clear understanding on the assumption of ordinary least square that there is no perfect or exact linear relationship among explanatory variables. The result of correlation matrix showed that every explanatory variable in the study is linearly independent of each other. Table 4.3 presents the results of the unit root test.

It has been shown in econometric studies that most macroeconomic time series are not stationary at levels. Giving this knowledge, testing for stationarity of variables to obtain a more reliable result becomes very essential. Stationarity test was therefore carried out using Augmented Dickey-Fuller (ADF) approach for unit root testing which are reported in table 4.1.In order to examine the unit root status of the variables.

Table 4.3: Results of Stationarity (unit root) test.

Variables	Variables' Name	ADF-Statistic	5% Critical Value	Remark
LITR	Literacy rate	-4.837884	-2.943427	1 (1)
AIDS	Foreign Aids	-4.992637	-2.945842	1 (1)
GFCF	Gross Fixed Capital Formation	-4.916722	-2.945842	1 (1)
EXCHR	Exchange Rate	-5.090027	-2.945842	1 (1)
INFLA	Inflation Rate	-3.053066	-2.943427	1 (1)

Source: EView 12

In the table 4.3, the variables that were tested with unit root are shown, the values for Augmented Dickey-Fuller (ADF) statistic is presented, the lag level of each variable is identified. The Mackinnon critical values at 5% level of significant were pointed out. The order of integration of each variable was enumerated, and finally the stationarity position of each variable was also stated. When Augmented Dickey-Fuller statistic is greater than Mackinnon 5 percent critical value in absolute term, it is concluded that the variable is stationary. These variables Exchange rate (EXCHR), Gross fixed capital formation (GFCF) and Literacy rate (LITERACY) were stationary at first difference, that is they are I(1) process while Human capital development (HCD), Foreign aids (AIDS) and inflation rate (INFLA) were stationary at level 1(0). Therefore, they contain unit root. The existence of unit root in most variables paves way for further investigation on the nature of the long run relationship among the variables. Table 4.4 presents the co-integration test. Since all the variables were integrated of order 1 (1), we turned to determine the existence of long run equilibrium relationship between the variables. Separate co-integration tests were carried out on foreign aids (AIDS), gross fixed capital formation (GFCF), literacy rate (LITR), Exchange rate (EXCHR) and Inflation rate (INFLA) respectively. The co-integration tests are based on the Johansen and Juselius (1989) test. Tables 5 and 6 present the co-integration test results

Table 4.3 Co-integration Test Result

Date: 05/23/23 Time: 12:59
Sample (adjusted): 1987 2022
Included observations: 36 after adjustments
Trend assumption: Linear deterministic trend
Series: AIDS GFCF LITR EXCHR INFLA
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 *	0.748110	124.1335	95.75366	0.0002
At most 1 *	0.587657	74.49805	69.81889	0.0201
At most 2	0.379589	42.60567	47.85613	0.1424
At most 3	0.321918	25.42026	29.79707	0.1470
At most 4	0.204641	11.43473	15.49471	0.1861
At most 5	0.084853	3.192128	3.841466	0.0740

Trace test indicates 2 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Source: EView Results

The co-integration results in table 4.2.1 for the model (HCD, AIDS, GFCF, LITERACY, EXCHR and INFLA) reveals that both trace test and the Max-eigenvalue test indicates 2 co-integrating equation(s) at the 5 percent level of significance. Thus there is a long-run relationship among the variables (HCD, AIDS, GFCF, EXCHR and INFLA). We therefore reject the null hypothesis of no co-integration amongst the variables and accept the alternative hypothesis. Table 4.4 presents the regression result

Empirical Results of the error correction Model (ECM)

Dependent Variable: LITR
Method: Least Squares
Date: 05/23/23 Time: 13:17
Sample (adjusted): 1986 2022
Included observations: 37 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	6.455800	1.394776	4.628555	0.0001
LOGAIDS	0.008590	0.146425	0.058663	0.9536
LOGGFCF	1.315733	0.239737	5.488230	0.0000
D(INFLA,1)	-0.010628	0.015410	-0.689651	0.4957
D(EXCHR,)	-0.020273	0.012372	-1.638534	0.1118
ECM-1	-0.123770	0.266549	-4.216001	0.0002

R-squared	0.888163	Mean dependent var	10.18688
Adjusted R-squared	0.865795	S.D. dependent var	3.638545
S.E. of regression	1.332943	Akaike info criterion	3.581314
Sum squared resid	53.30212	Schwarz criterion	3.886082
Log likelihood	-59.25430	Hannan-Quinn criter.	3.688759
F-statistic	39.70781	Durbin-Watson stat	0.302709
Prob(F-statistic)	0.000000		

Source: EView Results

The error correction model was carried out to examine parameters estimates. In testing this hypothesis, foreign aids (AIDS), gross fixed capital formation (GFCF), Literacy rate (LITR), Exchange rate (EXCHR) and Inflation rate (INFLA) were regressed against Human capital development (HCD). The result of the regression analysis represents the model for the impact of foreign aids on Human capital development in Nigeria. The empirical result shows that the coefficient of Foreign aids (AIDS) has positive and insignificant impact on Human capital development (HCD) because P-values of t – statistics (0.058663) is greater than significant value (0.005). The empirical result shows that the coefficient of gross fixed capital formation (GFCF) has positive and significant impact on literacy rate because P-values of t – statistics (5.488230) is less than significant value (0.005). The empirical result shows that the coefficient of Inflation rate (INFLA) has negative and insignificant impact on literacy rate because P-values of t – statistics (1.638534) is greater than significant value (0.005). The empirical result shows that the coefficient of exchange rate (EXCHR) has negative and insignificant impact on

Human capital development (HCD) because P-values of t – statistics (1.638534) is greater than significant value (0.005). Again, our empirical result shows that the R-squared (R^2) is 0.8881. The ECM statistics was (-4.216001). The ECMt-0 result indicates that 11% numbers of errors have been corrected from short run adjustment to the long run. In other words, ECM statistics shows that the model has 11 percent degree of adjustment from short-run to long-run equilibrium. Table 4.5 presents the Granger causality test. The essence of causality analysis, using the Granger causality test, is to ascertain whether a causal relationship exists between two variables of interest

Table 4. 5 : Result of Causality Test

Pairwise Granger Causality Tests
Date: 05/23/23 Time: 14:11
Sample: 1985 2022
Lags: 1

Null Hypothesis:	Obs	F-Statistic	Prob.
LOGAIDS does not Granger Cause LOGHCD	37	7.81366	0.0085
LOGHCD does not Granger Cause LOGAIDS		1.46462	0.2345
LOGGFCF does not Granger Cause LOGHCD	37	5.16285	0.0295
LOGHCD does not Granger Cause LOGGFCF		0.02811	0.8678
LITERACY does not Granger Cause LOGHCD	37	7.77486	0.0086
LOGHCD does not Granger Cause LITERACY		4.98646	0.0322
INFLA does not Granger Cause LOGHCD	37	0.15579	0.6955
LOGHCD does not Granger Cause INFLA		1.74755	0.1950
EXCHR does not Granger Cause LOGHCD	37	0.05453	0.8168
LOGHCD does not Granger Cause EXCHR		1.73238	0.1969

Source: EView 12 Results

Evaluating the results in Table 4.5 , based on the decision rule, the result of pairwise granger causality test shows that Foreign aids (AIDS) granger cause Human capital development (HCD) because its Prob. value (0.0085) was less than it Prob. Value (0.05) while Human capital development (HCD) does not granger cause Foreign aids (AIDS) because its Prob. value (0.2345) was greater than it Prob. Value (0.05). Gross fixed capital formation (GFCF) granger cause Human capital development (HCD) because its Prob. value (0.0295) was less than it Prob. Value (0.05) while Human capital development (HCD) does not granger cause Gross fixed capital formation (GFCF) because its Prob. value (0.8678) was greater than it Prob. Value (0.05). Literacy rate (LITERACY) granger cause Human capital development (HCD) because its Prob. value (0.0086) was less than it Prob. Value (0.05) while Human capital development (HCD) does granger cause Literacy rate (LITERACY) because its Prob. value (0.0322) was less than it Prob. Value (0.05). Inflation rate (INFLA) does not granger cause Human capital development (HCD) because its Prob. value (0.6955) was greater than it Prob. Value (0.05) while Human capital development (HCD) does not granger cause Inflation rate (INFLA) because its Prob. value (0.1969) was greater than it Prob. Value (0.05). Exchange rate

(EXCHR) does not granger cause Human capital development (HCD) because its Prob. value (0.8168) was greater than it Prob. Value (0.05) while Human capital development (HCD) does not granger cause Foreign aids (AIDS) because its Prob. value (0.1969) was greater than it Prob. Value (0.05). There is uni-directional relationship between foreign aids and Human capital development (HCD) in Nigeria. Table 4.6 presents the results of the model diagnostic tests

Table 4.6 Result of Breuch-Godfrey Serial Correlation LM Test

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	1.89525	Prob. F(2,28)	0.3400
Obs*R-squared	1.49359	Prob. Chi-Square(2)	0.3800

Source: EView 12

The Breuch-Godfrey Serial correlation LM Test was used to identify whether the model suffers from autocorrelation problem. The autocorrelation problem violates of ordinary least square assumption that says there is no correlation among error terms of different observation. Breuch-Godfrey Serial correlation LM Test is a statistic that ensures that the assumption of ordinary least square was not violated. The null hypothesis; there is autocorrelation problem because its Prob. Value of Breuch-Godfrey Serial correlation LM Test (0.3400) was greater than it Prob. Value (0.05), we reject alternative hypothesis and accept the null hypothesis. It is concluded that the model is free from Autocorrelation problem. This denotes that prediction base of the Ordinary Least Square estimates were efficient and unbias. Table 4.7 presents the results of the second diagnostic test(the model linearity test)

4.7 Result of Ramsey Reset Test

Ramsey RESET Test
Equation: UNTITLED
Specification: (LOGHCD,1) C (LOGAIDS,1) (LOGGFCF,1) D(LITERACY,1)
D(INFLA,1) D(EXCHR,) ECM-1
Omitted Variables: Squares of fitted values

	Value	df	Probability
t-statistic	0.298942	29	0.6700
F-statistic	0.967667	(1, 29)	0.6300
Likelihood ratio	0.689821	1	0.8900

F-test summary:

	Sum of Sq.	df	Mean Squares
Test SSR	30.79431	1	30.79431
Restricted SSR	53.30212	30	1.776737
Unrestricted SSR	22.50781	29	0.776131

LR test summary:

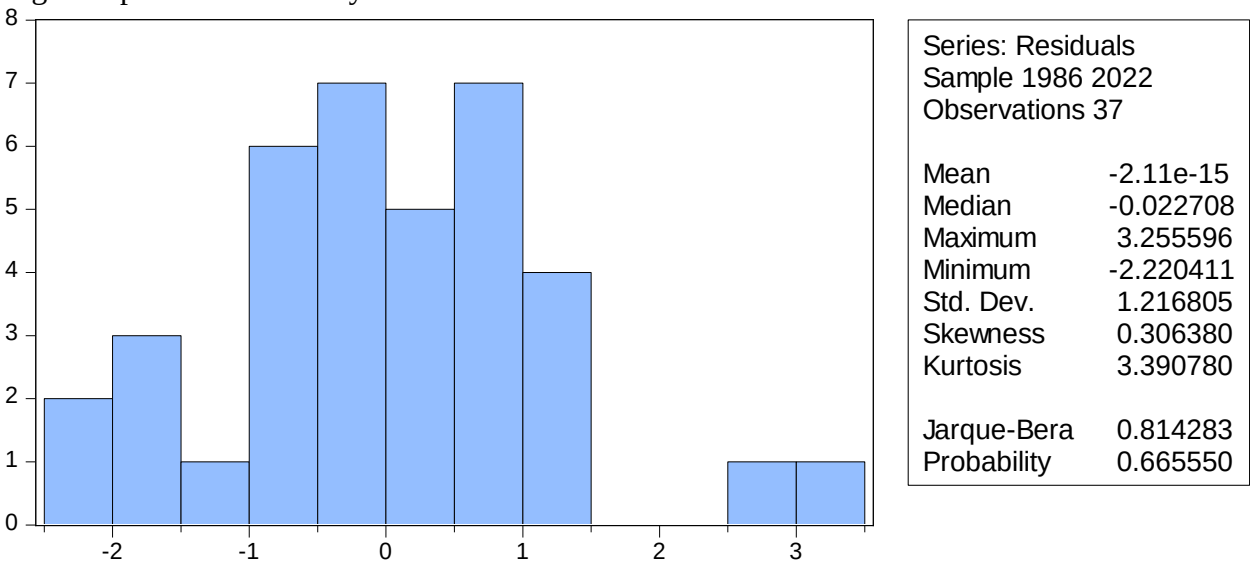
	Value	df
Restricted LogL	-59.25430	30

Unrestricted LogL	-43.30520	29

Unrestricted Test Equation:
Dependent Variable: LOGHCD
Method: Least Squares
Date: 05/23/23 Time: 13:44
Sample: 1986 2022
Included observations: 37

Source: EView Results

This second order test checks whether the model of the study suffers model specification error. The null hypothesis; there is model specification error. The Ramsey reset test showed that there was no specification error because P-value of Ramsey reset test (0.6700) was greater than it Prob. Value (0.05), we reject alternative hypothesis and accept the null hypothesis. It means that model include core variables in the model, does not include superfluous variables, the functional form of the model was very well chosen, there is no error of measurement in the regressand and regressor. Figure 4.1 presents the normality test of the model
Normality test is done to check if the residuals of the error term have a normal distribution. Normality test is conducted using Jacques-Bera (JB) test. In testing for normality, approach used by Paavola (2006) for testing normality using Jacques-Bera test was adopted.
Figure 5 presents Normality test for each of the Distribution.



Sources: EView 12 Version

Jarque-Bera (JB) test is statistics that compute both skewness and Kurtosis. Skewness shows the degree symmetry (normal distribution). The normal measurement is zero/0. Kurtosis is a statistics that compute degree of peakedness. The normal measurement is three/3. A distribution is skewed if one of its tails is longer than the other. A skewed distribution can be positive or negative. Positive skewed distribution means that it has a long tail in the positive direction. Negative skewed distribution means that it has a long tail in the negative direction. The null hypothesis is that there is skewness and Kurtosis in the model. We reject null hypothesis and accept the alternative that there is no skewness and Kurtosis in the model because its P-value of Jarque-Bera (JB) test (0.814283) is greater than its 5% significant level (0.05). This implies that the standardized residuals from the estimated model in the regression framework is normally distributed, which is consistent with the OLS assumption.

4.2 Discussion of the model results

4.2.1 Foreign aid, donor financing, donor financing and literacy rate in Nigeria.

It was observed from the hypothesis tested that foreign aids has positive and insignificant impact on the human capital development in Nigeria (P-values of t – statistics (0.058663) >Sig-value (0.005). The finding of this paper is in line with the study of Obu-Cann, Fosu and Bondzie, (2022) that examined the impact of foreign aid inflow on economic growth in Ghana, although, human capital development(literacy rate) is different from economic growth.Olowoniyi, (2022) that examined the impact of foreign aid on female human capital formation in Nigeria reported a negative relationship between foreign aid and female human capital development. It adopts the survey research method, using a random sample size of 240 females engaged in five sectors; academia (senior lecturers), medical profession (doctors and nurses), entrepreneurs (business owners), students (secondary/tertiary) and those in politics and governance. Our findings shows that there is no significant impact of foreign aid on human capital formation in Nigeria. This research concludes that the impact of foreign aid on female human capital is not significant in Nigeria. Furthermore, the finding of this paper is not in sync with the study of Fasanya and Onakoya, (2022) that analyzed the impact of foreign aid on economic growth in Nigeria during the period of 1987-2019. The specific objective of the study was the growth rate of GDP (GDPGR), growth rate of population (POPGR which is a proxy for the growth rate of labour force), investment/GDP ratio represents the growth rate of domestic capital stock and AID is the foreign aid. The findings show that aid flows has significant impact on economic growth in Nigeria: domestic investment increased in response to aid flows and population growth has no significant effect on aid flows. Aid flows also provides free resources to increase domestic investment, thus confirming the aid-policy growth hypothesis.

4.4.2 The long-run relationship between foreign aids, donor financing and literacy rate in Nigeria

This paper showed that there is a long-run relationship between foreign aids and Human capital development in Nigeria (Trace statistical test and the Max-eigenvalue statistical test indicates 2 co-integrating equation(s) at the 5 percent level of significance). The finding of this study was in line with study of Akintoye and Daniel (2021) that showed the impact of official development assistance on government expenditure. The result of the findings show that there is insignificant relationship between foreign aid and the Nigeria economy. However, the findings are not in line with study of Hamidu, Jelilov, Isik and Akyuz (2020) that examined the impact of foreign aid and infrastructural development on poverty reduction. The major findings of the study are three: one, foreign aid exerts a positive impact on poverty reduction in Nigeria in both short and long terms. Two, the infrastructural development also impacts positively on poverty reduction in Nigeria both in the short and long run; and three, the interaction of foreign aid inflows with infrastructural development yields a negative impact on poverty reduction in Nigeria. Again, the finding of this study was not in line with study of Duru, Okafor, Eze and Ebenyi, (2020) that explored the relationship between foreign aid and economic growth in Nigeria from 1984 to 2017. The results show that foreign aid did not contribute to economic growth in Nigeria. Also, the macroeconomic policy environment did not contribute to economic growth in both the short-run and long-run. Furthermore, the results revealed that the impact of foreign aid on economic growth in Nigeria was contingent on the quality of the macroeconomic policy environment. Hence, the claim that the effectiveness of aid is dependent on the q policy environment was valid for Nigeria.

4.4.2 Causality between foreign aid, donor financing and Literacy rate in Nigeria

This paper showed that there is uni-directional relationship between foreign aids and human capital development in Nigeria. The finding of this paper was not in line with the study of Fashina, Asaleye, Ogunjobi and Lawal, (2018) that investigated the link between aid and human capital in promoting economic growth of Nigeria. The study used two models; the first model was used to test the validity of the medicine model in Nigeria; while the extended model was used to investigate the effect of aid and human capital shocks on growth using Engle-Granger and Vector Error Correction Model (VECM) estimation techniques respectively. The findings from the first model suggest that persistent increase in foreign aid flows beyond a particular point (the optimal point) may adversely affect growth thus confirming the proposition of the Medicine Model. Evidence from the study's extended model indicates that growth in Nigeria is sensitive to human capital shock via education while the response from aid shock is trivial in the long run. The mechanism through which aid impacts economies is influenced by many heterogeneous factors, notably; the role played by the recipient governments is often not considered.

5 Conclusion and Policy Implication

5.1 Conclusion

This paper concludes that the foreign aids have positive and insignificant impact on human capital development particularly education in Nigeria. This paper was in line with the postulation of dependency theory that was formulated by Andre Gunder Frank in 1971 who stated that a core of rich nations benefits from the resources that flow into them from a periphery of underdeveloped and impoverished nations. The central tenet of dependency theory is that these poor states' integration into the world system is primarily responsible for their plight as well as the enrichment of the wealthy states. Dependency theory refers to the idea that ex-colonial powers retain wealth at the expense of the impoverished former colonies due to the wide-ranging effects of colonialism in Africa, Asia, and Latin America.

The paper has noted the insignificant impact of foreign aids given to the less developed countries in order for them to improve their economic development. It nonetheless, takes into consideration the fact that the improper usage of foreign loans has serious effects on the economic condition of the beneficiary countries. Therefore, it is policy wise to see foreign aid as a business affair in its aim and content rather than being considered as merely a demonstration of generosity between countries. Foreign aid is also a means of yielding interest by the donor nations; meaning what is given as aid to the less developed countries is not a gift for it is accompanied or tied to various ideological underpinnings meant to increase the power of the donor nations at the expense of the recipients.

5.2 Policy implication

The policy implications of this paper are as follows:

i) Nigerian government should provide effective ways of channeling and utilizing the inflows of foreign aid on human capital development including education in general. Also there is a need for the authority in charge to develop a suitable framework that would guide against the country's dependence on foreign aid beyond a point that may not be healthy for the economy.

ii) Nigerian government should encourage foreign aid in the form of technical assistance instead of financial aid in order to discourage mismanagement of resources. Technical aid will go a long way in improving human capital development and sustaining the growth and development of the economy. Also, there is a need to promote investments in the education and health sectors so as to maximize their benefits in the long-run.
iii) Nigerian government should not rely on foreign aids in solving its economic development challenges as foreign aids do not have significant effect in its development. Instead, the focus should be on policies that will reduce or eliminate government budget deficit and importantly increase foreign exchange earnings. Also, efforts should be intensified in creating conducive environment for investment especially in the real sector of the Nigeria economy which will lead to increased job creation, thereby improving savings

References

Akintoye, O.T. & Daniel, K.E. (2021) Effect of foreign aids on the Nigeria economic development; *Bingham University Journal of Accounting and Business, 12(4),* 98-109.

Amartey, D. (2027) the effect of foreign aid on agriculture, education and health sectors in Ghana; *Journal of Innovative Social Science. & Humanities. Research, 22*(6), 28-36.

Duru, I. Okafor, B.O.N., Eze, M. A. & Ebenyi, G .O. (2020) Foreign aid and economic growth: Empirical Evidence from Nigeria; *Growth, 7*(1), 35-50.

Ewubare, D. B. & Ozigbu, J. C. (2019) Estimating the dynamic relationship between foreign aid and infrastructural development in Nigeria; *International Journal of Development and Economic Sustainability, 7*(7), 39-51.

Eze A. E., Okpara, U. H. & Madichie, C. V (2020) Impact of foreign aid on economic growth in Nigeria; Socialscientia Journal, *5*(1), 34-43.

Fasanya, I. & Onakoya, A. (2022) Does foreign aid accelerate economic growth? An Empirical Analysis for Nigeria; *International Journal of Economics and Financial Issues*; 2(4), 423-431.

Fashina, O. A., Asaleye, A.J., Ogunjobi, J.O., & Lawal, A.I. (2018). Foreign aid, human capital and economic growth nexus: Evidence from Nigeria. *Journal of International Studies, 11*(2), 104-117.

Fashina, O. A., Asaleye, A.J., Ogunjobi, J.O., & Lawal, A.I. (2018). Foreign aid, human capital and economic growth nexus: Evidence from Nigeria. *Journal of International Studies, 11*(2), 104-117.

Gyimah-Brempong, K. & Asiedu, E. (2018) Aid and human capital formation: Some Evidence; J*ournal of International Studies and research Review, 11*(2), 104-117.

Hamidu, N., Jelilov, G. Isik, A. & Akyuz, M. (2020). The effects of foreign aids on infrastructural development and poverty alleviation in the developing countries: A case study of Nigeria. *The Journal of Middle East and North Africa Sciences*, 6(09), 25-35.

Index Mundi. (2021). Retrieved March 22, 2021, from Historical data graphs per year: https://www.indexmundi.com/g/g.aspx?v=94&c=ni&l=en

Isiaka, N.A. and Makinde, W.A. (2020) Effect of foreign aids on economic growth in Nigeria *Canadian Social Science, 16*(10), 26-36.

Isiyaku, A. Zasha, T. Z. & Suleiman, U. (2022) Foreign aid and economic development in less developed countries (LDC): Nigeria at glance; *Zamfara Journal of Politics and Development* 3(2), 12-23.

Michiel, J. (2022) Impact of foreign direct investment on human capital enhancement in developing countries; *Journal of International Studies, 11*(2), 104-117.

National Open University of Nigeria (NOUN). (2015). Politics of development and underdevelopment. Lagos: Author. *Zamfara Journal of Politics and Development, 3(2), 12-23.*

Nderitu, P. G. & Wenani, A. K. (2023) Foreign capital flow, institutional quality and human capital development in sub-Saharan Africa, Cogent Economics & Finance, 11(1), 12-23.

Obijiaku, I. O. (2015). Foreign aid: Nigerian legal and economic albatross. *Journal of Law, Policy and Globalization, 42*, 59 - 64.

Obu-Cann, E. Fosu, G. O. & Bondzie, E.A. (2022) Foreign aid and aid policy effectiveness on economic growth of Ghana; *Journal of Innovative Social Science. & Humanities. Research,* 22(6); 28-36.

Olowoniyi, A. (2022) The impact of foreign aid on female human capital formation in Nigeria; *Journal of Innovative Social Science. & Humanities. Research,* 22 (6); 28-36.

Ozigbo, J. & Ewubare, D. (2019) Exploring the nexus between foreign aid and human capital development in Nigeria; *Journal of Economics and Sustainable Development*; 10 (7); 12-23.

Trinh, T. (2019) Impact of foreign aid on determinants of growth in Vietnam Economics; J*ournal of International Studies and Research Review, 11*(2), 104-117.

Ukpong, U. A. (2017). Foreign aids and African development: Lessons from Nigeria. *Journal of Political Science & Public Affairs, 5*(3), 1 - 3.