

**FOREIGN AIDS AND ECONOMIC GROWTH IN NIGERIA.**

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**Abstract**

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*This study empirically scrutinizes the impact of foreign aid (ODA) on economic growth (GDP) in Nigeria. Relying on time series data that spanned over a period 1980 to 2020. Here we also included net capital inflows (NCI); foreign direct investment (FDI); trade openness (TOP); and corruption perception index (CPI) as control variables. The study applied an error correction mechanism (ECM) estimation technique to the time series data to investigate the ODA-Growth relationship. Solow growth model was used to establish a link between theory and empirics. The outcomes of the study shows that official development assistance from multilateral financial institutions has no significantly effects on economic growth in Nigeria. The ECM result further shows that in the long-run, the relationship remains negative- this may be as a result of prevailing corruption and mis-management of aids by Nigeria government functionaries. The study, consequently midst others recommends that ODA should be channeled to productive sectors so as to complement current investments and attract new investments. The dynamic productive sector should not rely on low wages in search of an elusive foreign demand but instead need to be linked to the domestic economy. Policies and institutions that stimulate mutually public and private investment should be strengthened. Long-run sustainability of projects should be emphasized.*

**Keywords:** Official Development Assistance, Net Capital Inflows; Foreign Direct Investment; Trade Openness; Corruption Perception Index: Economic Growth.

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**Introduction**

Multilateral Financial Institutions are financial institutions operating on an international level, by giving loans to governments for larger-scale projects, restructuring and balance of payments in the hope of economic growth and development of a country. According to financial sector team of department for international development ADB, (2004), financial sector development includes everything from banks, stocks exchanges, and insurers, to credit unions, micro finance institutions and money lenders. Liang (2007) noted that endogenous financial development results directly from economic growth.

Multilateral financial institutions provide a broad range of financial services in developing countries, such as loans or guarantees to investors and entrepreneurs, equity participation in firms or investment funds and financing for public infrastructure projects (Dickinson, 2009).

As a rapidly growing economy, Uzbekistan has close cooperation with Development financial institutions DFI<sub>s</sub> in promoting the effectiveness, modernization and diversification of the nation's economy. In line with co-financing with multilateral and bilateral DFI<sub>s</sub>, Uzbekistan established national DFI-reconstruction and development fund of Uzbekistan in 2006 in order to implement modernization and technical equipping of leading and priority sectors, to ensure

dynamic, sustainable and balanced socio-economic growth to run effective and structural investment policies.

The average incomes earned by households are an important yardstick in measuring poverty levels of any economy. With a growing population worldwide, per capital incomes have reflected the wealth of countries. Per capital income increase with or decrease as the case may be in commensurate with level of economic growth and development of countries. Developed countries tend to have high per capital incomes compared with less developed countries thus contributing to poverty levels (Ogoh, 2013). Per capital incomes for Nigeria in 2016 were estimated at US\$5,740 per annum which is considered rather low considering the huge potential (Dirk, 2014).

Policy intervention to address the substantial financing gap is merited, given the Nigeria context of a vulnerable macro-economy, a shallow financial system, weak institutional infrastructural, and the need to promote sustainable economic development. The development bank of Nigeria (DBN), a new DFI focusing on SME finance, should contribute to the solution of finance problem in Nigeria, but its success is not guaranteed unless it is carefully designed and this design is effectively implemented. This study fills the aforementioned gap by exploring the relationship between two proxies of multilateral financial integration and Nigeria's economic growth, using VAR and Granger causality

The roles played by the multilateral financial institutions in the development of developing countries in general and Nigeria economy in particular has been sufficiently covered in the literature.

Specifically, studies are abounds, to the best of our knowledge, on Nigeria that have taken explicit account of potential non-linearity in the impact of multilateral financial institutions and Nigeria economy relationship. Furthermore, similar studies in the past have discussed the roles of multilateral financial institutions and its effects on Nigeria's economic development. These studies have provided evidence that there is indeed a relationship between the multilateral financial institutions and macroeconomic variables performances. However, most of these studies have not in clear terms show the direction of the impact. While some studies shows positive relationship others says the relationship is negative due to lack of consensus as noted above there exist a drought of knowledge on the true relationship between multilateral financial institutions and development of Nigeria economy. It is against this backdrop that this study shall investigate the correlation between multilateral financial institutions and the development of Nigeria economy.

Thus, this study seeks to fill this gap in knowledge by examining the roles of multilateral financial institutions and development of Nigeria economy from 1980 to 2020

### **Statement of the Problem**

Developing countries face low-income levels, growing unemployment, broadening current account shortfalls, high inflation, and high poverty levels. These nations lack appropriate financial resources to solve these economic glitches efficiently and consequently; they depend on ODA from multilateral financial institutions to supplement their domestic resources. The primary objective of ODA from multilateral financial institutions is promotion of economic growth and welfare. Nigeria has been receiving substantial amounts of ODA from multilateral financial institutions to ease saving, foreign exchange and/or fiscal restraints. The Nigerian government in its effort to achieve rapid economic growth and development has over the years dedicated to implement policies that stimulate wealth creation as stipulated in the Economic Recovery Strategy for Wealth and Employment Creation in the Nigeria vision 20:2020 programmes. Notwithstanding the government's efforts and the increased donor assistance, the country's economic development

has remained gloomy. While there could be many qualitative and quantitative dynamics explaining the poor performance, the critical development suggest that there could be more to Nigerian economic glitches than low revenue base, and also puts into query the influence of ODA on development. The statistical signal on the correlation between ODA and economic development remains unconvincing. Researchers have found diverse and opposing pragmatic evidence. Some scholars such as Mckee and Bells (2013); Sakyi, 2011; uphold that ODA has a substantial positive bearing on economic growth with a subgroup of them claiming ODA to be growth enhancing in certain macroeconomic policy environment (Bhavan, 2013; Driffield and Jones, 2013). Others (Erega et.al, 2012; Liew et.al, 2012; etc) worried on the harmful effect of ODA on growth although others such as Kolawole, 2013; Wako, 2011; established inconsequential role of ODA on growth. Consequently, it is indeterminate that ODA has noteworthy impact on economic growth leaving the topic widely exposed to examination. Hence, the need for further enquiry on the roles of multilateral financial institutions on the Nigeria economic development.

The broad objective of this study is to evaluate the Relationship between Official Development Assistance (ODA) from multilateral financial institutions and Economic growth in Nigerian since 1980 – 2021.

## **Literature Review**

### **Empirical Literature Review**

The connection between multilateral financial institution and economic growth has been a matter of much debate. Multilateral financial flows have long been recognized to play an important role in economic growth and development.

A relatively recent study carried out by Adebayo and Kalmaz (2020) examined the relationship between economic growth, foreign aid, trade, gross fixed capital formation, and inflation rates in Nigeria. The time-series regression analysis for the 39 years (1980– 2018) used the Bound cointegration test, ARDL, and the time-frequency domain wavelet coherence approach. Their study confirmed that there is a long-run relationship between the indicators considered. The study also revealed that economic growth is significantly affected by foreign aid, trade openness, gross fixed capital formation, and inflation rates in the long run. The results of the wavelet coherence technique provide evidence to support the long-run estimation of this study, and the wavelet coherence results are supported by the results of the Toda–Yamamoto causality test.

Jena and Sethi (2020) empirically tested the effectiveness of foreign aid by improving the prospects for economic growth in the sub-Saharan Africa (SSA) region from 1993 to 2017 from 45 SSA countries. This study is based on Pedroni and Kao's cointegration test, the Johansen–Fisher Panel cointegration test, FMOLS, and PDOLS. They found that long-run and short-run relationships exist between foreign aid, economic growth, investment, financial deepening, price stability, and trade openness of the SSA economy. Moreover, there is also a unidirectional causality running from foreign aid to economic growth. The implications of this finding emphasize that the government in the region needs to design appropriate policy measures aimed at removing barriers; hence aid flows can be used more wisely to lead to optimal utilization of available resources.

Mahembe and Odhiambo (2019) also conducted a study in 82 developing countries to examine the causal relationship between foreign aid, poverty, and economic growth. Their study used annual dynamic panel data from 1981 to 2013 with a panel unit roots approach, cointegration, and a panel vector error-correction model (VECM) Granger causality test (Granger 2004). The results of their study provide evidence that there is a two-way causal relationship between economic growth and poverty in the short term. In addition, a unidirectional causal relationship

was also found between economic growth and foreign aid. Their study also empirically found a unidirectional causality between poverty and aid abroad. In contrast to the results of the short-term analysis, in the long run, it was found that foreign aid tends to converge on its long-term equilibrium path in response to changes in economic growth and poverty. In addition, economic growth and poverty together lead to foreign aid.

Ali et al. (2019) stated that foreign aid has a significant adverse effect on the corruption level. Furthermore, it was also found that foreign aid lowered the corruption perception index, thereby leading to more corruption in the country. This study was carried out to analyze foreign aid (FA) on corruption in Pakistan, India, Sri Lanka, and Bangladesh. The variables analyzed are the corruption level, foreign aid, GDP per capita, democracy, the rule of law (public perception of applicable law), and political stability from 2000 to 2014. The analysis was carried out using dynamic ordinary least squares (PDOLS) and fully modified ordinary least squares (FMOLS) panels to estimate the coefficients of cointegrating vectors and the Granger causality test panel

Agunbiade and Mohammed (2018) investigated into the effect of Foreign Aid (FA) on the Economic Development in Nigeria from 1986 – 2016. The examination utilized secondary data and evaluated past works done in the area for information gathering. They utilized Vector Error Correction Model (VECM), after unit root test and Johansen co-integration test of the arrangement were completed. The investigation discovered that Foreign Aid Flow (FAF) in Nigeria is decidedly identified with Gross Domestic Product (GDP), yet anyway inconsequential. That is, it doesn't make sway on the economy to be felt by individuals.

N'dri Kan (2017) examined the nexus between official development assistance and poverty alleviation ECOWAS countries with the application of panel data between 1980 and 2014. The results from the study indicated that that ODA contributed to poverty alleviation in the region. But, its impact on economic growth was inimical. As a result of this, the author submitted that that ODA is pro-poor, which is not growth enhancing in ECOWAS sub region.

Ugwuegbu, Okafor and Akarogbe (2016) analyzed the impact of external borrowing and foreign financial aid (foreign grant) in the form of Official Development Assistance (ODA) on the growth of the Nigerian economy over a time of 34 years from 1980 to 2013. Yearly time arrangement information was acquired from the Central Bank of Nigeria (CBN) statistical bulletin and Organization for Economic Cooperation and Development (OECD's on the web). The examination utilized Ordinary Least Square procedure (OLS), multiple regression models in deciding the causal-impact between the factors under investigation. The test for Unit Root was led utilizing Augmented Dickey-Fuller (ADF), Johansen Co- integration test was utilized to decide the long-run connection between the factors (variables) and Error Correction Method (ECM) was embraced to assist us with deciding the speed of change. The outcomes show that while external debt has a positive and huge impact on economic growth, foreign aid in congruity with the deduced assumption is decidedly identified with GDP too however genuinely immaterial.

Biscaye, Reynolds and Anderson (2016) inspected 45 papers that exactly test the relationship among bilateral and multilateral aid flows and various development outcomes including gross domestic product growth, governance indicators, human development indicators and levels of non-aid investment flows. Discoveries propose that contrasts among nations and districts, time spans, aid targets, and individual giver associations all may impact the viability of aid conveyed bilaterally and multilaterally. They find, nonetheless, no steady proof that either bilateral or multilateral aid is more viable generally speaking.

Ighodaro and Nwaogwugwu (2013) inspected the effectiveness of foreign aid to the growth of the agricultural sector in Nigeria utilizing the ARDL and the ECM approach and quarterly

information covering the time frame 1981 to 2009. While every one of the factors utilized were discovered to be I(1), four co-integration connections exist between the reliant and the autonomous factors. As opposed to assumption, the boundary gauge of foreign aid has a negative and irrelevant relationship with agricultural output in the short and long run. Actually, reserve funds and innovative pattern are critical and have positive relationship with agricultural output both in the short run and long run.

Bashir (2013) analyzed the effect demanded by foreign assistance in the form of Official Development Assistance (ODA) and Foreign Direct Investment (FDI) on real growth in Nigeria over the time frame 1980 to 2011. Utilizing the Two-Gap model and different econometric strategies which incorporate Augmented Dickey Fuller (ADF) test, Granger causality test, Johansen co-integration test and Error Correction Method (ECM), observational outcomes uncover that there is Granger no-causality between any pair of the factors. Discoveries of the investigation additionally settled a negative connection among FDI and real growth as ODA demands no effect on real growth in the country.

Mba, Bell-Gam and Ubi (2012) examined the interchange of foreign aid, external debt and economic growth. Given the probable concurrence between foreign aid, external debt and economic growth, they utilized the apparently irrelevant regression assessment model to look at the interaction between these factors utilizing Nigerian information. They tracked down that foreign aid decidedly affects growth and that external debt adversely affects economic growth in Nigeria. A curiosity in this investigation is that there is proof of complex interaction between the degree of external debt and aid inflows.

Oayyum and Haider (2012) experimentally inspected the effect of external debt and foreign aid on economic growth by mulling over the nature of establishment as far as successful administration. Yearly information for the period 1984 to 2010 has been taken from a board of sixty non-industrial nations. Experimental outcomes show that the great administration and foreign aid influence the economic growth decidedly while that of external debt has an adverse consequence. These outcomes are vigorous for different elective determinations.

## Methodology

### Model Specification

Both Lucas (1988) and Romer (1989) argue that the neoclassical growth model developed by Solow (1956) fails to explain a large portion of the growth in the output because it treats technological innovation and population growth as exogenous variables. This criticism, combined with other empirical drawbacks experienced by the model, gave birth to the endogenous growth model in which output growth has been set as a function of physical capital, labor as well as human capital. According to Rana (1987) and Tallman and Wang (1994), the basic neoclassical growth model of Solow (1956) and Swan (1956) can be expressed in an augmented aggregate production function as follows:

$$Y_t = A_t K_t^\alpha (H_t L_t)^\beta \dots \dots \dots (1)$$

Where  $Y_t$  represents the real aggregate output;  $L$  and  $K$  denote, respectively, labor (employment) and physical capital inputs;  $H$  represents the level of human capital;  $A$  is a measure of technology and exogenous knowledge  $\alpha$  is the share of capital  $\beta$  is the share of labor and the subscript  $t$  represents time. Taking the natural logarithm for the underlying variables, the estimated form of equation 1 can be derived as:

$$\ln Y_t + \alpha \ln(K_t) + \beta \ln(L_t) + \delta \ln(H_t) + \ln(A_t) \dots \dots \dots (2)$$

Taking the aim of investigating the effect of aid on the economic growth into account, the aggregate capital can be disaggregated into Official Development Assistance from multilateral

financial institutions, Net Capital Inflows (Portfolio Investment) and Foreign Direct Investment. In addition, the variables that conventionally appear in economic growth model such as Trade Openness can be also added to the model. Moreover, we see that the model we intend to investigate must take into consideration the changes that occurred in economic policies during the period being investigated as well as the level of institutional quality.

Accordingly, Corruption Perspective Index variable is included; the institutional quality is measured by the interaction between public corruption index and the official development assistance. Applying these changes to equation 2, the final model can be rewritten as;

**The Model**

Here, the model is explicitly formulated; this shows the true relationship between economic growth variables, official development assistance and some other key explanatory variables. Economic Growth as dependent variable (GDP) gives

$$GDP = a_0 + a_1 ODA + a_2 NCI + a_3 FDI + a_4 TDO + a_5 CPI + u_1 \dots\dots\dots (3)$$

Where GDP= Economic Growth.

ODA = Official Development Assistance from multilateral financial institutions.

NCI = Net Capital Inflows (Portfolio Investment).

FDI = Foreign Direct Investment.

TDO = Trade Openness.

CPI = Corruption Perspective Index.

a<sub>0</sub> = intercept.

a<sub>1</sub> – a<sub>5</sub> = various slopes of the equation.

u<sub>1</sub> = Stochastic Error Terms.

We also tried the non-linear specifications. Specifically, the Cobb-Douglas variety is specified, estimated and compared with the linear version. The log-linear specification will be adopted to place all the variables in the model on the same scale or level and to minimize the problem of multicollinearity. According to Cooley (2009) “In practical economic research, the standard practice is to try both the linear and non-linear forms of the relationship and analyze the one that gives the best result. Hence, the Cobb-Douglas (aggregate production function) variety is specified as follows:

Economic Growth as dependent variable (GDP) gives

$$\log GDP = a_0 + a_1 \log ODA + a_2 \log NCI + a_3 \log FDI + a_4 \log TDO + a_5 \log CPI + u_1 \dots\dots\dots (4)$$

**Economic Variables Considered**

**Dependent/Endogenous Variables**

- i. **Gross Domestic Product (GDP):** GDP at purchaser's prices is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources. Data are in constant 2000 U.S. dollars. Dollar figures for GDP are converted from domestic currencies using 2000 official exchange rates.

**Independent/Exogenous Variables**

- i. **Official Development Assistance (ODA):** Net official development assistance (ODA) consists of disbursements of loans made on concessional terms (net of repayments of principal) and grants by official agencies of the members of the Development Assistance Committee (DAC), by multilateral institutions, and by non-DAC countries to promote economic development and welfare in countries and territories in the DAC list of ODA

recipients. It includes loans with a grant element of at least 25 percent (calculated at a rate of discount of 10 percent). Net official aid refers to aid flows (net of repayments) from official donors to countries and territories in part II of the DAC list of recipients: more advanced countries of Central and Eastern Europe, the countries of the former Soviet Union, and certain advanced developing countries and territories. Official aid is provided under terms and conditions similar to those for ODA. Part II of the DAC List was abolished in 2005. The collection of data on official aid and other resource flows to Part II countries ended with 2004 data. Data are in current U.S. dollars. A high Net official development assistance (ODA) will cause an increase in GDP. Thus, the functional relationship between ODA and economic growth is hypothesized thus:  $a_1 > 0$  or  $\frac{dGDP}{dODA} > 0$ ;

- ii. **Net Capital Inflows (NCI):** Portfolio equity includes net inflows from equity securities other than those recorded as direct investment and including shares, stocks, depository receipts (American or global), and direct purchases of shares in local stock markets by foreign investors. Data are in current U.S. dollars. A high Capital Inflow (portfolio investment) will cause an increase in GDP. Thus, the functional relationship between NCI and economic growth variables is hypothesized as:  $a_2 > 0$  or  $\frac{dGDP}{dNCI} > 0$
- iii. **Foreign Direct Investment (FDI):** Foreign direct investment refers to direct investment equity flows in an economy. It is the sum of equity capital, reinvestment of earnings, and other capital. Direct investment is a category of cross-border investment associated with a resident in one economy having control or a significant degree of influence on the management of an enterprise that is resident in another economy. Ownership of 10 percent or more of the ordinary shares of voting stock is the criterion for determining the existence of a direct investment relationship. This series shows net outflows of investment from the reporting economy to the rest of the world. Data are in current U.S. dollars. A high foreign direct investment inflow will cause an increase in the rate of GDP. Thus, the functional relationship between FDI and economic growth is hypothesized as:  $a_3 > 0$  or  $\frac{dGDP}{dFDI} > 0$
- iv. **Trade Oppenness (TDO):** Trade is the sum of exports and imports of goods and services measured as a share of gross domestic product. A highly opened economy will cause an increase in GDP. Thus, the functional relationship between TDO and economic growth is hypothesized as:  $a_4 > 0$  or  $\frac{dGDP}{dTDO} > 0$
- v. **Corruption Perspective Index (CPI):** Corruption can be defined as "an arrangement that involves an exchange between two parties (the demander and the supplier) which (i) has an influence on the allocation of resources either immediately or in the future; and (ii) involves the use or abuse of public or collective responsibility for private ends" Macrae (1982). However, based on the data used, the corruption perspective index ranks countries and territories based on how corrupt their public sector is perceived to be. A country or territory score indicates the perceived level of public sector corruption on a scale of 0-100, where 0 means that a country is perceived as highly corrupt and 100 means it is perceived as very clean. A high corruption rating is expected to cause a decrease in the dependent variables GDP. Thus, the functional relationship between CPI and economic growths is hypothesized as:  $a_5 < 0$  or  $\frac{dGDP}{dCPI} < 0$

### Model Estimation Techniques

Empirical investigations were carried out on the basis of a sample of 41 annual observations covering the period 1980 – 2020. Six variables were considered in this study: Two basic techniques were employed in the analysis of the study. They are descriptive as well as econometric method of analysis (Ordinary Least Square OLS). In order to achieve this, the study used unit root test, co-integration modeling technique to analyze the relationship.

### **Unit Root (Stationarity) Test.**

Also, because of spurious regression that may likely occur when OLS techniques are used especially, when the variables included were non-stationary therefore, we tested for the stationary characteristics of the data. The order of integration (unit root) tests was conducted for each variable. The order of integration test was used to identify whether or not data are stationary. Augmented Dickey-Fuller (ADF) test was used.

### **Co-integration.**

It has been observed that virtually, the body of statistical estimation theory is based on asymptotic convergence theorems which assume that data series are stationary. However, econometric tools are increasingly being brought on non-stationary data which are not even asymptotically consistent with the notions of convergence. Furthermore, far from being a special case, non-stationary is extremely common in macroeconomic time-series such as income, consumption, money, prices and trade data. There are two tests for co-integration. The first is the Engle-Granger methodology and the second is Johansen's methodology.

In our analysis, we shall focus on the Johansen's methodology. This methodology addresses all the weakness of the Engle-Granger approach and produces more reliable results. It represents an improvement in the sense that co-integration relationship and error correction equations are jointly estimated. Moreover, in this analysis, no variables are arbitrarily set as dependent variables as has been the case with Engle-Grange approach. Finally, one of the most interesting aspects of the Johansen procedure is that it allows for testing restricted forms of the co-integrating vectors. Due to these advantages of Johansen's methodology, we shall use it in our analysis.

The basic argument of Johansen's procedure is that the rank of matrix of variables can be used to determine whether or not the two variables are co-integrated. The Johansen's methodology consists of the following four steps:

- i) In order to check the order of integration, we present all the variables. Then we plot the data in order to ascertain whether there is linear time trend in the data generating process. In order to get results which are not sensitive to lag length we estimate vector auto-regression using the un-different data. This is most common practice in estimation.
- ii) Estimate the model to determine the rank of the matrix of variables. It is important to note that the residuals of the estimated models must be carefully interpreted and analyzed. If there is any evidence that errors are not white-noise usually means that lag length are too short.
- iii) Analyze the normalized co-integrating vectors and the speed of adjustment co-efficient.
- iv) Innovation counting. It shall couple with causality tests on the error model facilities in finding a structural model that shows to what extent the estimated model is reliable and reasonable. For hypothesis testing, consider the hypothesis that the variables are not co-integrated implying that the rank of the matrix of variables is equal to zero.

### **Error Correction Model:**



The ECM established the dynamic relationship, as well as indicate the speed of adjustment from the short-run to the long-run equilibrium state. When the variables were found to be cointegrated, an over-parameterized ECM was developed, with the gradual elimination of the insignificant coefficients, so as to obtain the parsimonious ECM.

## Data Presentation and Analysis

### The Unit Root (Stationarity) Results

Macroeconomic data usually exhibit stochastic trend that can be removed through only differencing. We employed the Augmented Dickey Fuller (ADF) to test the order of integration of the variables. The regressions were run for all the series at both level and first difference and, with constant and trend in the equation. As usual, the appropriate lag level applied in the unit root test follows the SIC criterion. The results of the ADF test are presented in the table below

**Table 4.1**

### The Stationarity Test in Summary and the Order of Integration

Variables	Augmented Dicky-Fuller	5% Mackinnon Critical Value	Remark	Order of Integration
GDP	-4.895346***	-2.938987	Stationary	I(1)
ODA	-6.713539***	-2.941145	Stationary	I(1)
NCI	-7.483616***	-2.957110	Stationary	I(1)
FDI	-7.569025***	-2.938987	Stationary	I(1)
TDO	-7.956327***	-2.938987	Stationary	I(1)
CPI	-5.335098***	-3.004861	Stationary	I(1)

**Source; author's computation** Note:\*\*\* statistically significant at 5%, Significant levels.

The unit root result above shows that all the variables were stationary at first difference i.e. I(1) series. The result from the stationary test therefore calls for long-term relationship.

### Johansen Co-Integration Test

The co-integration test establishes whether a long-run equilibrium relationship exist among the variables. To establish co-integration, the likelihood ratio must be greater than the Mackinnon Critical Value @ 5% levels of significance and the co-integrating equation is chosen from the normalized co-integrating coefficient with the lowest log likelihood.

**Table 4.2**

### Johansen Co-integration Result of GDP and Official Development Assistance (ODA)

Maximum Eigen Value	Trace Statistics	5% Critical Value	Hypothesized No.CE(S)
0.949928	171.5693	95.75366	$r = 0^*$
0.867521	102.7004	69.81889	$r \leq 1^*$
0.656487	56.20974	47.85613	$r \leq 2^*$
0.518244	31.63353	29.79707	$r \leq 3^*$
0.362921	14.83621	15.49471	$r \leq 4$
0.176499	4.466380	3.841466	$r \leq 5^*$

**Source: Author's Computation.**

\*denotes rejection of the null hypothesis at 5% significance level

Using the trace statistics, table 4.4 shows three co-integrating equations at 5% significance level. This implied that long run relationship exists among the variables. This led to the rejection of the hypothesis of no co-integration. Cointegration is a prerequisite for the error correction

mechanism. Since co-integration has been established, it is pertinent to proceed to the error correction model. The first step in ECM is to develop an over-parameterized model with the gradual elimination of the insignificant coefficients so as to obtain the parsimonious model.

### Error Correction Models

**Table 4.5 Result of the Parsimonious Model (Dependent Variable D (GDP))**

#### ECM RESULT OF GDP

Dependent Variable: D(GDP)

Method: Least Squares

Date: 08/24/22 Time: 13:53

Sample (adjusted): 18 39

Included observations: 22 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1.10E+09	8.96E+09	-0.122872	0.9070
D(ODA)	-1.273638	3.992433	-0.319013	0.7626
D(ODA(1))	-4.374513	3.918170	-1.116468	0.3150
D(ODA(2))	-6.836016	5.004847	-1.365879	0.2302
D(NCI)	1.644248	3.359267	0.489466	0.6452
D(NCI(1))	-2.486148	3.537376	-0.702823	0.5135
D(NCI(2))	0.673129	3.892242	0.172941	0.8695
D(FDI)	-4.209518	10.01333	-0.420392	0.6917
D(FDI(1))	0.760160	9.637088	0.078879	0.9402
D(FDI(2))	-0.586696	9.315836	-0.062978	0.9522
D(TDO)	-4.13E+09	1.60E+09	-2.579451	0.0495
D(TDO(1))	-3.30E+09	1.57E+09	-2.104981	0.0892
D(TDO(2))	-3.33E+09	1.41E+09	-2.364491	0.0644
D(CPI)	4.48E+09	3.80E+09	1.181354	0.2906
D(CPI(1))	7.86E+09	3.98E+09	1.977334	0.1049
D(CPI(2))	5.71E+09	4.31E+09	1.324209	0.2427
ECM(-1)	-0.595479	0.176517	-3.373491	0.0198
R-squared	0.860073	Mean dependent var	1.57E+10	
Adjusted R-squared	0.412308	S.D. dependent var	4.33E+10	
S.E. of regression	3.32E+10	Akaike info criterion	51.35173	
Sum squared resid	5.50E+21	Schwarz criterion	52.19481	
Log likelihood	-547.8691	Hannan-Quinn criter.	51.55034	
F-statistic	1.920814	Durbin-Watson stat	2.621628	
Prob(F-statistic)	0.242820			

Source: Author's computation using E-Views 9.0

From the above table 4.5 we derived the following ECM equation:

$$GDP = -1.1 - 4.37ODA_{t-1} - 2.49NCI_{t-1} + 0.76FDI_{t-1} - 3.30TDO_{t-1} + 7.86CPI - 0.60ECM_{t-1}$$

### Implication of Empirical Results

**Economic Growth:** The ECM result indicates that official development assistance from multilateral financial institutions has no significantly effects on economic growth in Nigeria. This

result confirmed Kolawole, 2013; Wako, 2011; they found insignificant role of ODA on growth. ODA has a negative relationship with GDP. According to the results, a continuous increase in ODA to Nigeria has a negative effect on economic growth and a decrease ODA has a positive effect on the GDP growth rate of Nigeria. This result is not consistent with our expectations however, it approves most other studies on ODA from multilateral institutions such as Erega et.al, 2012; Liew et.al, 2012; etc) stress the detrimental effect of ODA on growth, are either misdirected to non-developmental projects or given by donors with selfish string attached. Invariably, the ECM result further shows that in the long-run, the relationship remains negative- this may be as a result of prevailing corruption and mis-management of aids by Nigeria government functionaries. The ECM coefficient exhibited the hypothesized negative sign (-0.595479). The ODA speed of adjustment to long run steady state is about 60 per cent. Furthermore, it is statistically significant at 5 per cent level. The variables in the model explained about 86 per cent of total variation in GDP the entire ECM model is insignificant as evident from the F-statistic value of about 1.920814 and a corresponding probability value of 0.242820.

### Summary of the Findings

The arguments justifying ODA flows to developing nations range from giving a big push out of poverty trap, bridging the financial gap to inducing better policies and institutional environment. Theoretically an increase in ODA flows leads to increased growth. However, the empirical literature on the impact of ODA on growth has not produced irrefutable results on whether ODA spur economic growth.

The empirical findings suggest a long-run relationship running from the explanatory variables to GDP and 60% speed of adjustment to equilibrium; implying that 60% of discrepancy in GDP the previous year is adjusted for the current year. The results also indicate that trade openness and net capital inflows (NCI) have a negative influence on economic growth in the short run. The study found a positive impact of foreign direct investment (FDI) and corruption perspective index on growth in the short run. Although the ODA coefficient was negative; it was statistically insignificant and therefore; ODA flows to Nigeria does not spur economic growth in the short run.

### Conclusion

The insignificant effect of ODA on growth in the short run could be attributed the diversion of ODA resources into unproductive use (white elephants and wrong projects). Some of the projects funded through ODA do not provide benefits as expected as they die within the funding period and therefore; sustainability of projects is key. It could also be hypothesized that the insignificant effect of ODA on growth is due to allocation of more ODA to social sectors which contribute to welfare rather than economic growth. Nigeria should focus on internal factors rather than external factors to stimulate economic growth.

### Policy Recommendations

- ODA should be channeled to productive sectors so as to complement current investments and attract new investments.
- The dynamic productive sector should not rely on low wages in search of an elusive foreign demand but instead need to be linked to the domestic economy.
- Policies and institutions that promote both public and private investment should be strengthened.
- Long-run sustainability of projects should be emphasized.

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