Foreign Aid, Aid-Institutional Quality Interaction and Economic Growth in Developing Countries: Evidence from Nigeria

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Abstract: *The study examined the effect of foreign aid and aid-institutional quality interaction on economic growth in Nigeria for the period (1981 - 2022) using FMOLS method. The result of the study shows that foreign aid (ODA) exerted positive but insignificant impact on economic growth in Nigeria, indicating that ODA is relevant to Nigeria's economic growth but is not among the major drivers of economic growth in Nigeria. The aid-institutional quality interaction variable, the ODA interaction with corruption index (ODA*CPI), showed negative relationship with economic growth which suggests that weak institution, especially corruption, had constrained the positive effect of ODA on economic growth in Nigeria. The ODA absorptive capacity constraint (ODA^2) had a negative and significant impact on economic growth which suggests the existence of inverted U-shape relationship between ODA and economic growth. The negative coefficient of absorptive capacity constraint of ODA shows that there is a critical level which beyond, further increase in ODA will impede economic growth. As for other variables, labour force (L), domestic capital (K), crude oil price (COP), financial deepening (FDP) and trade openness (TOP) had positive and significant relationship with economic growth (RGDP) in Nigeria. The coefficient of foreign direct investment (FDI) had a negative sign, implying that FDI had a negative impact on economic growth in Nigeria. It is recommended that there should be prudent utilization of ODA received, better and effective macroeconomic policies, improvement in the quality of governance and strengthening of relevant institutions to abate the problem of pervasive corruption in the country. Finally, aid fungibility should be avoided.*

Key words: Foreign aid, institutional quality, economic growth, Nigeria

INTRODUCTION

Foreign aid otherwise called Official Development Assistance (ODA), which began in the late 1940s with the initial aim of reconstructing the war-torn economy of Western Europe (Sogge, 2002), has remained one of the major sources of foreign capital inflow to Less Developed Countries (LDCs) over the years. Provided by governments of developed countries, multilateral institutions and regional development banks, foreign aid comes in the form of grants (which do not have to be repaid), concessional loans (which have to be repaid but at a lower interest rate and over a long period) and other non-financial assistance (such as food, technical assistance and peace keeping efforts) (Akinbobola & Nwosa, 2015). Foreign aid comes directly to the government and is therefore seen as a source of revenue which is used to finance various developmental projects/programmes capable of contributing to the growth and development of the recipient economy (Ekpo, 2021).

Though there are other purposes for foreign aid like political, commercial, humanitarian, and cultural interest, the major objective is economic, that is, promotion of economic development and welfare in less developed countries (LDCs), usually measured by its impact on economic growth (Durbarry et al, 1998; McMillan, 2011). Flood (1993) decomposes the purposes of foreign aid further to include enhancing poverty reduction, human capital development, environmental protection to promote sustainable development, reduction in military spending, efficient economic management, private enterprise development, enhancement of the role of women, good governance and democratic government, and the observance of human rights and the rule of law. These objectives have influenced the allocation of aid, the degree to which it has been tied, the conditionality attached to it, and hence its effectiveness.

Economists have divergent views on the effect of foreign aid on economic growth in LDCs. The pro-aid viewpoint argues that foreign aid helps to spur economic growth in less developed countries (LDCs) by augmenting domestic saving, raise investments, increase the capital stock, ease foreign exchange constraint, and transfer of knowledge, managerial skills and technology from rich countries to poor countries, enhances productivity, especially aid in education and health programmes as well as facilitates easy access to foreign markets (Chenery & Strout, 1966; Okpanachi, 2011; Jhingan, 2012; Albiman, 2016). The World Bank reports on Sub-Saharan African economies from early 1980's up to 2000s stressed increase in foreign aid as an important tool for remediating poverty and ensuring economic prosperity in African countries (Albiman, 2016). Similarly, Jhingan (2012) stressed that foreign aid is indispensable for economic development of less developed countries. He maintained that by making money, machines and technical know-how available to the LDCs, foreign aid helps in building up overhead capital, enhancing industrialization, creation of employment opportunities, modernizing society and strengthens both the private and public sectors. Undoubtedly, some countries like South Korea, North Korea and China that have benefited from foreign aid at one time or the other have grown

to become aid donors while many African countries have remained backward (Fasanya & Onakoya, 2012).

The radical anti-aid view, on the other hand, opines negative effect of foreign aid on economic growth of the LDCs. This group maintains that foreign aid supplants domestic savings, worsen income inequality, funds the transfer of inappropriate technology, finance ineffective projects, and in general, creates dependency syndrome, helps sustain bigger, more corrupt and inefficient governments in the recipient countries in the LDCs, all of which impede economic growth in the LDCs (Griffin & Enos, 1970; Okpanachi, 2011). Another strand of argument is that the effectiveness of foreign aid to deliver on its' objective in LDCs depends on institutional quality, political conditions and macroeconomic policies (fiscal, monetary and trade policies) of the recipient countries as well as the size and type of aid (McGillivary et al, 2006). It has been observed that many African countries is strongly linked to the prevalence of weak institutions, bad policies, corruption and macroeconomic instability. McGillivray et al (2006) asserted that the unimpressive performance of foreign aid in many developing countries is because most of them had bad policies and possess weak institutions. He maintained that though foreign aid is needed by LDCs to escape the poverty trap, the prevalence of inappropriate institutional arrangement and policies undermines the potentials of aid thereby resulting in sub-optimal economic performance.

Furthermore, it has been asserted that the capacity of foreign aid to accelerate economic growth is contingent upon the capital absorption capacity of the recipient country, which is the recipient country's ability to use aid funds wisely and productively (Chenery & Stout, 1966; McGillivray, 2006). The capacity to make productive use of foreign resources depends on a number of factors such as the existing infrastructure, the available skilled labour, and the institutional and administrative capacity of the central, state and local governments. Excessively high amount of foreign aid raises problems of absorption capacity and may be counter-productive. On the effect of type of aid, it has been stressed that most foreign aids are often tied to the export of donor countries which results in a substantial debt repayment burden and, tied aid limits the freedom of the recipient countries to obtain capital goods and technical know-how at competitive prices in the world markets (Richard, 2011). Also, it has been noted that not every aid is geared toward accelerating economic growth. Some types of foreign aid like emergency aid and humanitarian relief aid do not exert strong impact on economic growth. These kinds of foreign aid are inspired by the desire to fulfil the Millenium Development Goals (MDGs) and Sustainable Development Goals (SDP) like poverty alleviation (Tang & Bundhoo, 2017; Nwosu, 2018).

In addition to the divergent views on the effect of foreign aid on economic growth in LDCs, the results of the empirical studies had remained mixed and inconclusive. The findings of some empirical studies show positive and significant effect of foreign aid on economic growth (Hadimicheal, 1995; Fasanya & Onakoya, 2012; Nwosu, 2018) while a good number of empirical studies report significant negative effect (Bakare, 2011; Albiman, 2016). There are some studies which show that the effect of foreign aid on economic growth is conditional on institutional quality,

quality of governance and macroeconomic policy environment (Bauer, 1991; Durbarry et al, 1998; Burnside & Dollar, 2000; Easterly et al, 2004).

Nigeria has been a beneficiary of foreign aid for over half a century now. Since 1970's, substantial foreign aid funds have been received in Nigeria. For example, the net foreign aid inflows received from all donors was $151.99 million in 1999. It increased to $173.8 million and $578.77 million in 2000 and 2004 respectively. The foreign aid to Nigeria was $6,401.79 million in 2005, $11,431.96 million in 2006 and $1,958.6 million in 2007. In 2008, foreign aid inflow was $1,293.73 million and $1,639.23 million in 2009. It increased to $2,478.6 million and $2,431.54 million in 2014 and 2015 respectively. Foreign aid inflows to Nigeria in 2021 and 2022 were $135,600 and $138,720 respectively (WDI, 2023). Despite the foreign aid funds inflow into Nigeria over the years, the performance of the Nigerian economy has not fared better compared to countries like South Korea, North Korea and China that have escaped poverty trap. Nigeria is still characterised by high incidence of poverty, low per capita income, low savings rate, low level of investment, high income inequality, high level of unemployment, balance of payments deficits, fiscal deficits, inadequate provision of basic needs such as food, water supply and housing, poor and inefficient provision of social infrastructure like education and health services. In addition, Nigeria is still classified as one of the poorest countries of the World and has been scoring very low in its Human Development Ranking.

The above situations raise doubts on the effectiveness of foreign aid inflows in stimulating economic growth, reducing poverty and improving the standard of living in Nigeria. Many researchers have also shown serious doubts over the effectiveness of foreign aid to promote economic growth in less developing countries. For example, Malik (2008) opined that for 30years, foreign aid has not shown any improvement in the standard of living for the developing countries. It is on this basis that this study is carried out to investigate whether foreign aid has had substantial benefits on the Nigerian economy. The objective of this paper is to examine the effects of foreign aid and aid-institutional quality interaction on economic growth in Nigeria for the period (1981 – 2022). This paper contributes to the existing pool of empirical literature on the effects of foreign aid on economic growth of developing countries, particularly Nigeria, through its thorough analysis covering a longer time period. This study has 5 sections. Following this introduction, section 2 presents literature review while section 3 considers the methodology of the study. The empirical results are presented in section 4 and section 5 provides the summary, conclusion and recommendations.

LITERATURE REVIEW

Conceptual Discourse

Foreign aid is international development assistance from developed countries to developing countries. Foreign aid has been variously conceptualized. At some point, 'all real resources' transferred from developed countries to developing countries were regarded as foreign aid

(Ekiring, 2000; Ridle, 2007; Inanga & Mandah, 2008; Girma, 2015). This raised conceptual problems because it included certain resources transfer which do not possess the quality of foreign aid. For example, preferential tariffs granted by developed countries to exports of the developing countries amounts to 'disguised' resource transfer but it does not qualify as foreign aid. The flow of foreign private investment (foreign direct investment and portfolio investment) is prompted by commercial consideration of profit and rate of returns, and should not be classified as foreign aid (Chenery & Carter, 1993). In addition, foreign aid differs from foreign borrowing and foreign investment in that, unlike the latter two types of foreign capital inflows, foreign aid in most cases does not cause an outflow of funds to pay back debt or repatriation of profits or capital (Okpanachi, 2011).

Foreign aid has been conceptualized as international transfer of capital goods or services for the benefits of other nations (Ekiring, 2000; Inanga & Mandah, 2008; Girma (2015). These authors iterate that foreign aid is offered in various forms namely capital transfers in cash and kind, either as grants or loans; technical assistance and training usually as grants in the form of human resources and technical equipment, and military assistance in the form of either equipment or training advisors. Riddle (2007) also defined foreign aid as comprising all kinds of resources ranging from physical merchandise, skills and technical know-how to financial grants including gifts and loans which are given to recipients by donors at concessional rates. Though military aid is both non-commercial and concessional, it is excluded from international economic measurement of foreign aid. The United Nations Organization (UNO) viewed foreign aid as outright grants and long-term loans for non-military purpose by governments and various international organisations. Foreign aid has also been conceived as inflows of funds with a non-commercial motive attached by the donor and concession in interest rate and repayment terms to the recipients. Todaro & Smith (2011) asserted that the most widely used and accepted definition of foreign aid is one that encompasses all official grants and concessional loans, in currency or in kind, that are broadly aimed at transferring resources from developed countries to less developed countries for development, poverty reduction and income redistribution purposes. Similarly, Ekpo (2015) defined foreign aid as concessional loans and grants. A loan is considered sufficiently concessional to be included in ODA if it has a grant element of at least 25.0 per cent, calculated at a 10 per cent discount rate (Girma, 2015; Ekpo, 2015). It should be noted that aid has grant elements of 86.0 per cent as a norm but any loan with a grant element of 25.0 per cent and above is deemed concessional (Ekpo, 2015). The current grant element adopted by most developing economies, especially Nigeria and Ghana is 35.0 per cent.

There are multilateral and bilateral aid. The bilateral aid refers to aid from one country's government to another country's government while multilateral aids are largely financed by Development Assistance Committee (Ekpo, 2015). Foreign aid is provided from both public and private source, hence it can be categorised into public aid and private aid. While public aid is official bilateral and multilateral development assistance, private aid is unofficial development assistance provided by non-governmental organisations. It is worthy of note that, only public aid

is usually measured in official statistics (Todaro & Smith, 2011). Foreign aid, therefore is official development assistance (ODA) comprising grants, concessionary loans and technical assistance from developed countries to developing countries for development purposes.

Foreign aid can be disaggregated into project aid, programme aid (import supports, debt relief, budget support aid, sectoral aid and counterpart funds), humanitarian aid (or emergency aid), food aid and technical assistance (White, 1998; Ogundipe & Ola-David, 2015; Ekpo, 2015). In programme aid such as budget support aid, the recipient government are completely free over its use and also in sectoral aid, the donor specifies the sector (such as education, transport or health), but leaves the recipient country to decides on the use of the aid within that category (Ekpo, 2015). Studies conducted to examine the impact of these disaggregated aid on economic development (Islam, 1992; Ouattara, 2003; Mavrotas, 2005) reveal that the effectiveness of disaggregated aid varies across countries and kinds of aid. Assessing the effectiveness of disaggregated aid in Bangladesh, Islam (1992) found that food aid was more effective than project aid. Mavrota (2005) studied the effect of disaggregated aid in Uganda using error correction model (ECM) and found that in comparison, the effect of programme aid was significantly greater than that of project aid, while technical cooperation and food aid had a significant negative effect on economic growth. Examining the effect of disaggregated aid on public savings in Cote d'Ivoire, Ouattara (2003) found that technical aid and food aid increased public savings whereas programme aid had neutral effect and project aid depleted public savings.

Eligibility for foreign aid and even the size of foreign aid funds that flows to a country is determined by a number of factors. Principal among them is the per capita income of the respective LDC, with low-income countries recognized as the most deserving. Other criteria include strategic interests of the donor, population size, institutional reforms, economic performance, the lack of access to private sector financing, economic hardship and the need for food or relief aid (Flood, 1993; Burnside & Dollar, 2000). Smaller countries as well as relatively poorer countries are likely to receive more aid. The policy regimes of each country such as inflation and trade openness also influence the amount of aid received (Freeny & McGillivray, 2008).

Theoretical literature
In the literature there are many theories which provide insight into the link between foreign aid and economic growth. The theoretical basis for this study is anchored on Harrod-Dormar model, "two-gap" theory, "three-gap" theory, aid fungibility and capital absorptive theory. The Harrod-Dormar model, pioneered by Sir Roy F. Harrod (1939) and Evsey Dormar (1946), maintains that physical capital formation (savings /investment) is the vital ingredient for achieving economic growth; therefore, the incremental rate of output is equal to the savings rate divided by the incremental capital output ratio. This is shown in the formula:

$g = s/v$

where "g" is the incremental rate of output, "s" is the savings rate and "v" is the incremental capital-output ratio. This implies that savings and growth are positively correlated.

This link is further buttressed using the theory of production in its simple form. The theory of production states that output is a function of capital and labour. This is presented in the formula:

$$Y = f(K, L)$$

Where Y is the output, K is the capital, and L is the labour while f represents the function operator. Less developed countries (LDCs) are known for having surplus labour, but lacking sufficient capital. It is lack of sufficient capital that has constrained the rate of growth of output in LDCs. The lack of sufficient capital is as a result of low savings capacity and financial exclusion (Nwosu, 2018), and low level of investment. The LDCs are unable to raise the required amount of domestic savings that match with investment demand for their required rate of economic growth, hence external assistance in the form of foreign aid to fill the savings-investment gap becomes inevitable. According to Harrod-Dormar model, the main purpose of foreign aid is to promote investment by supplementing domestic savings. This is shown by the formula

$$g = (a + s)/v$$

where g, s and v are as earlier defined and "a" is foreign aid. It is believed that foreign aid will augments domestic savings, raise investment and capital, hence enable the LDCs to achieve a higher growth rate than what domestic savings alone would have permitted. It is expected that overtime, higher growth rate will result in higher savings rate thereby making sufficient domestic capital available and consequently, the need for foreign aid will diminish and eventually disappears (Panjak, 2005). Foreign aid would have fulfilled the aim of transforming the LDC from Aid-led development to a Self-sustaining development (Nwosu, 2018).

The believe had been that the level of economic growth of a country depends on the level of investment. Saving is a critical factor for investment expansion and growth. On this premise, the two-gap approach to economic development, pioneered by Chenery & Strout (1966), identified saving-investment gap and foreign exchange (exports - imports) gap as two separate and independent constraints to the attainment of a target rate of growth in LDCs and posits that foreign aid is a way of filling these two gaps in order to achieve the target growth rate of the country. Similarly, Moreira (2005) cited by Nwosu (2018), stressed that capital formation in LDCs is constrained by the shortage of either domestic savings (savings gap) or exports earnings (trade gap). The saving gap arises because the domestic saving rate in the LDCs is insufficient to finance the required investment to achieve the target growth rate. The trade gap exists because in most LDCs, export earnings are far below imports requirements and as a result, there is a shortage of foreign exchange to finance the importation of capital and intermediate goods. Therefore, foreign assistance in the form of foreign aid can provide the needed foreign exchange which can be used to fill the foreign exchange gap so as to achieve a targeted rate of growth (Delessa, 2012).

Closely related to the two-gap model is the three-gap model developed by Bacha (1990). The three-gap theory is an extension of the two-gap model to include a third gap, called the fiscal gap (Bacha, 1990). It shows the interaction between savings-investment gap, foreign exchange gap and fiscal gap. The fiscal gap is said to exist because the tax system in the LDCs is not well developed, hence the taxable capacity and administrative ability to enforce and collect taxes efficiently is low. Consequently, tax revenue generated is always insufficient to finance necessary expenditure on investment, therefore creating fiscal gap. The fiscal gap occurs when government expenditure exceeds revenue, resulting in a budget deficit. In order to finance the budget deficit, it becomes expedient for the government to borrow from either the private sector or the central bank. Sourcing fund from private sector may not be feasible because low per capita income makes it impossible to raise sufficient domestic saving to fill the gap. In addition, even if it is possible to raise domestic saving, borrowing from private sector leads to higher interest rate and reduction of loanable funds available in the economy for private sector borrowers; both of which affects domestic private investment adversely (Ekpo & Adaowo, 2011; Ekpo, 2024). Borrowing from the central bank, though it's crowding out effect is usually neutral, most often is not considered a good option because it is highly inflationary as increase in the volume of money is not likely to match with increase in production in the economy and, it is the responsibility of the government to maintain macroeconomic stability in the economy. This model, therefore recommends foreign aid as a vital option for bridging the fiscal deficit gap.

Aid fungibility occurs when the recipient country diverts aid funds from the purpose intended by the donors; which implies that not all aid fund is invested by the recipient country. Pack & Pack (1993) asserts that aid fungibility is often characterized by movement of aid funds from development investment expenditure to unproductive consumption expenditure like deficit reduction. In most cases, aid fungibility is strongly linked to ineffectiveness of certain types of aid. For instance, unlike project aid which is subject to stricter conditionality and has been reported as being more successful in terms of aid effectiveness, programme aid is prone to fungibility. Aid fungibility make it possible for the recipient country to use part of the aid money for its consumption (government expenditures other than capital outlay) and part for investment, and even the embezzlement of aid funds by government officials. Leiderer (2012) averts that in LDCs, where per capita income is low, the probability of embezzling aid funds is high, and since programme aid is not specific, certain percentage of it might end up in the pockets of corrupt government officials.

Morrissey (2005) identified three elements of aid fungibility as non-additionality, general fungibility and categorical fungibility. In the case of non-additionality, even if the LDCs does not received aid, there is a possibility that they might have financed that project on their own. Hence, the existence of ODA has freed up additional resources, which could either be put in the project it was earmarked for or be reallocated elsewhere. In this regard, Harms & Lurtz (2004) argued that in reality, aid availability is an incentive for corrupt administration to intentionally lower their domestic investment efforts so that they get a continuous stream of aid money from donors.

General fungibility is said to occur when aid funds intended for productive investment is spent on unproductive activities like consumption. Categorical fungibility is fungibility between sectors. For instance, aid funds meant for education being used on defence. Aid fungibility is liable to inhibit the effectiveness of foreign aid in facilitating economic growth in the recipient country. However, according to proponents of foreign aid, aid fungibility is not necessarily all bad, especially in countries with sound macroeconomic policies and appropriate expenditure allocation, because aid funds are still made productive, even if misallocated (World Bank, 1998).

Capital Absorptive Capacity Theory also provides insight on the relationship between foreign aid and economic growth. Capital absorptive capacity is the ability of a nation to make effective use of different forms of capital to provide needed goods and services to underserved communities. Capital absorptive capacity, in the context of foreign aid, is the ability of the recipient countries to use foreign assistance wisely, productively and as a source of financing economically viable projects (Reyes, 1990). The capacity of foreign aid to accelerate economic growth is contingent upon the absorption capacity of the aid funds recipients (Chenery & Strout, 1966). Capital absorptive capacity theory, though described as non-economic model of foreign aid, lays emphasis on human capital gap by arguing that scarcity of technological advancement and managerial skill needed for efficient production undermines the utilization of aids resources in the LDCs. This theory explains that the impediments to growth in less developed countries are not limited to economic factors alone but extend to non-economic factors like lack of entrepreneurship, low levels of education, among others. These factors contribute to the underutilization of resources in LDCs, thereby producing sub-optimal goods and services. However, if foreign aid can be channelled towards the development of human capital, then output growth can be achieved. This theory advocates that aid funds should be invested in human capital development such as skill development and establishment of technical institutions.

Empirical Literature Review
Empirical studies on the relationship between foreign aid and economic growth in LDCs had been approached from various perspectives and the result remains inconclusive. While some studies report positive impact of foreign aid on economic growth, others observed negative relationship and yet others show no effects. There are some studies which stress that the effect of aid on growth is conditional on the quality of institutional arrangement and macroeconomic policies prevalence in the recipient's countries (Burnside & Dollar, 2000; Heckelman & Knack, 2008). Burnside & Dollar (2000) demonstrated that foreign aid causes economic growth only in countries that maintain low inflation, are open to trade, have a liberalized financial sector and run low budget deficits. However, studies by Easterly (2003), Easterly et al (2004), and Roodman (2007) refuted the conditional strand, pointing out that the significance of interaction effects in such studies may be as a result of extensions in dataset and influential observations.

Hadjmichael et al. (1995) examined the relationship between foreign aid and economic growth in a cross-section study of 31 African countries for the period (1986 - 1992), using generalized least

squares method and found a significant positive impact of foreign aid on economic growth with diminishing returns. Chenery & Carter (1973) employed two-gap model of Chenery & Strout (1966) to investigate the effects of ODA on the development performance of 50 countries for the period (1960 – 1970). The findings of the study indicate that the effect of ODA on the development performance of countries understudied differs among certain groups of countries. In countries like Taiwan, Korea, Iran, Thailand and Kenya, ODA has positive impact on growth, whereas in six countries – India, Colombia, Ghana, Tunisia and Ceylow, ODA retards growth.

Ekanayake & Chatrna (2010) analysed the effects of foreign aid on the economic growth of 85 developing countries, covering Asia, Africa, Latin America and Caribbean countries for the period (1980 – 2007) using panel data series for foreign aid, while accounting for regional difference in Asian, African, Latin American and the Caribbean countries as well as the difference in income levels. The results of the study indicate that ODA has mixed effects on economic growth in developing countries. Employing a system technique to account for the inherent endogeneities, Driffield & Jones (2013) studied the impact of ODA, foreign direct investment and migrant remittances on economic growth in developing countries. The finding of the study shows that ODA, foreign direct investment (FDI) and migrant remittances had positive and significant impact on economic growth where there are strong institutions.

Ogundipe & Ola-David (2015) examined the relationship between foreign aid and income per capita using a simple augmented neoclassical cross-country specification for West African states. Disaggregating foreign aid into seven categories (agriculture, communication, industrial, engineering, education, health, and food) and the result of the study showed that in most cases, the impact of aid becomes significant when conditioned on sound macroeconomic policy whereas institutional quality and infrastructural development do not significantly influence the aid-growth relation. The study also established a decreasing return to aid, as the marginal impact of aid on growth appears negligible in all likelihood. The study stressed the need to develop absorptive capacity, ensure sound pro-development policies and urge donor to systematically link aid to performance.

Albiman (2016) investigated the impact of foreign aid on economic growth of Tanzania between 1976 and 2014, using endogenous growth model and Dynamic Ordinary Least Square (DOLS) method. The result of the study indicated that foreign aid has negative impact on economic growth of Tanzania for the period under study. It was further found that in the short-run, foreign aid does not Granger cause economic growth. Girma (2015) studied the impact of foreign aid on economic growth in Ethiopia for the period 1974 to 2011. Using the ARDL approach, the paper examines whether foreign aid effectiveness is conditional on stable macroeconomic policy environment. The results showed that aid has negative impact on economic growth, but the positive coefficient of aid policy index interaction indicates that foreign aid would positively contribute to economic growth in Ethiopia if supplemented with stable macroeconomic policy environment.

Fasanya & Onakoya (2012) employed error correction model (ECM) to investigate the impact of foreign aid on economic growth in Nigeria for the period 1970 – 2010. The results of the study showed that foreign aid exerts positive and significant impact on economic growth in Nigeria. The study also indicated that domestic investment increased in response to foreign aid flows while population growth had no significant effect on aid flows. Utilizing a VAR model, Bakare (2011) examined the effect of foreign aid on economic growth in Nigeria and found a negative relationship between foreign aid and output growth, indicating that foreign aid tends to worsen output growth in Nigeria rather than improve it.

Kolawole (2013) studied the effects of ODA and FDI on economic growth in Nigeria for the period 1980 – 2011 using Granger causality test and ECM technique. The findings of the study showed absence of causality between the pair of variables. The ECM results revealed that ODA had insignificant effect on economic growth in Nigeria while foreign direct investment had a negative impact on economic growth. Nwosu (2018) examined the effect of foreign aid on economic growth in Nigeria from 1981 to 2016, using two stage least squared (2SLS) method of analysis. The result of the study indicated positive and significant relationship between foreign aid and economic growth in Nigeria. This study maintained that although foreign aid is relevant for economic growth in Nigeria, it is not among the economy's major growth drivers.

Akinbobola & Nwosa (2015) investigated the impact of capital inflow (foreign direct investment, foreign aid, and international worker's remittances) on economic growth in Nigeria for the period, (1970 – 2014) using the Vector Error Correction Modelling (VECM) technique. The VECM estimate showed that foreign aid had insignificant effect on economic growth. The impact of worker's remittances was positive and significant while foreign direct investment had a negative and significant effect. The study concluded that the impacts of foreign direct investment, foreign aid, and worker's remittances on economic growth are different and recommended the formulation of specific capital flows policies rather than one-for-all capital inflow policies.

Justification: From the literature reviewed, there are gaps that this study intends to fill. In addition to mixed and inconclusive empirical results, most of the previous studies on foreign aid - economic growth nexus in Nigeria did not include domestic capital and labour force in their models, which based on neoclassical production function, are basic determinants of economic growth. In addition, most of the previous studies conducted in Nigeria did not consider crucial variables like aid absorptive capacity constraint, aid-institutional quality interaction, crude oil price in international market and trade openness among their variables. In an attempt to fill the gaps, this study, in addition to the official development assistant, incorporated domestic capital, labour force, aid absorptive capacity constraint, aid-institutional quality interaction, crude oil price in international market and trade openness together with other variables such as foreign direct investment and financial deepening (broad money supply to RGDP ratio) to make the model robust. The estimation technique for the analysis of this study is Fully Modified Ordinary Least Square (FMOLS) method.

METHODOLOGY

Model Specification

The neo-classical Solow model states that economic growth is as a result of the combination of labour and capital. However, in the growth-determinants literature, in addition to labour and capital used in the neoclassical production function, a wide range of other variables have been identified to have affected economic growth of a country. In order to capture the impact of official development assistance (ODA) on the aggregate production of the economy, aggregate production function is modified and extended by including ODA and the production function is given as:

$$RGDP = f(L, K, ODA) \qquad \text{- - - 1}$$

The findings of some recent studies have shown that there is an inverted U-shaped relationship between foreign aid and economic growth (Feeny & McGillivray, 2008). This implies that there are diminishing returns to aid due to absorptive capacity constraints in recipient countries. This relationship is captured by including a square term, ODA^2, in the model. It is also believed that good policy enhances the effectiveness of foreign aid in spurring growth (Burnside & Dollar, 2000; Easternly, 2003). The quality of the institutions in a country affects the policy formulation and implementation, hence an aid-policy interaction is captured in term of aid-institutional index and in this case, aid-corruption perception index interaction, ODA*CPI, is included in the model. In order to take into account, the specificities of the Nigerian economy which depend heavily on crude oil export earnings, crude oil price in international market, COP, is also captured in the model to explain the Nigerian economic growth. Other control variables included in the model are trade openness, TOP, foreign direct investment, FDI and financial deepening, FDP. The operational model selected to explain the relationship between foreign aid and economic growth in Nigeria is presented as follows:

$$RGDP = f (L, K, ODA, ODA^2, ODA*CPI, COP, TOP, FDI, FDP) \qquad \ldots 2$$

This model is presented in natural log form in order to help avoid heteroscedasticity as well as improve the linearity of the parameters.

$$LnRGDP_t = bo + b_1 LnL_t + b_2 LnK_t + b_3 LnODA_t + b_4 LnODA^2_t + b_5 LnODA_t*LnCPI_t + b_6 LnCOP_t + b_7 LnTOP_t + b_8 LnFDI_t + b_9 LnFDP_t + e_t \qquad \ldots 3$$

Where RGDP is real gross domestic product used as a proxy for economic growth, L is labour force, K is gross capital formation as a proxy for domestic capital, ODA is official development assistance, ODA^2 is official development assistance squared as a proxy for recipient country absorptive capacity constraint, ODA*CPI is a proxy for aid-institutional interaction, COP is crude oil price in international market, TOP is trade openness, FDI is foreign direct investment, FDP is financial deepening (broad money supply to RGDP ratio). b_0 is constant term while b_1, - - -, b_9's are coefficients and e_t is white error term while t represents time.

Data Sources and Estimation Technique

Time series data for the period (1981 - 2022) of the variables employed in the estimation of the equation were obtained from the CBN Statistical Bulletin (2023) and World Bank Development Indicators (2023). The data were subjected to some verification tests such as unit root test using Augmented Dickey-Fuller (ADF) to examine the stationarity property, co-integration test to ascertain the existence of long run relationship of the variables, causality test using granger causality test and Error Correction Method (ECM) to ascertain the speed of adjustment from the short run equilibrium to the long equilibrium state. The study employed Fully Modified Ordinary Least Square (FMOLS) method to establish the nature of the long run relationship between the variables. FMOLS models, originally proposed by Phillips and Perron (1988) are categories of multiple time series models that directly estimate the long-run effect of the independent variables on the dependent variable after correcting the endogeneity problem in the time series. FMOLS is also refer to as Co-integrating equation model. Some diagnostic tests such as auto-correlation (serial correlation) test using Durbin-Watson statistics, normality test using Jarque Bera test, ARCH test to check for heteroscedasticity, RESET and LM test to check for misspecification on the model were conducted.

EMPIRICAL RESULTS AND DISCUSSION

Descriptive Statistics

Table 4.1: Descriptive Statistics

	RGDP	K	L	ODA	ODA^2	TOP	AIDPOL	COP	FDI	FDP
Mean	37473.69	7198.409	40305519	2575.001	34808993	0.17321	64620.09	44.0390	2.43E+09	12.35238
Median	27112.63	3425.580	39421365	6.777729	45.94567	0.11000	54.39241	30.7100	1.44E+09	8.250000
Maximum	78549.00	24683.37	67518491	19251.56	3.71E+08	0.47170	462037.5	109.450	8.84E+09	25.34000
Minimum	13779.26	1798.580	25088.81	0.138682	0.019233	0.00090	0.000000	12.2800	1.88E+08	5.920000
Std. Dev.	21992.92	6434.180	15432417	5372.676	90814472	0.17391	133703.9	30.1826	2.53E+09	6.524665
Skewness	0.522246	1.172437	-0.401892	2.115091	2.726138	0.43965	2.042417	0.89781	1.237519	0.736617
Kurtosis	1.658550	3.173434	3.406313	6.094171	9.235709	1.60457	5.671274	2.52890	3.339150	1.906660
Jarque-Bera	5.058294	9.674896	1.419526	48.06960	120.0699	4.76072	41.68775	6.03089	10.92146	5.890167
Probability	0.079727	0.007927	0.491761	0.000000	0.000000	0.09251	0.000000	0.04902	0.004250	0.052598
Sum	1573895.	302333.2	1.69E+09	108150.0	1.46E+09	7.27500	2714044.	1849.64	1.02E+11	518.8000
Sum Sq. Dev.	1.98E+10	1.70E+09	9.76E+15	1.18E+09	3.38E+17	1.24003	7.33E+11	37350.7	2.63E+20	1745.422
Observations	42	42	42	42	42	42	42	42	42	42

Source: Author Computation.

The descriptive statistics of the variables used in the study are presented in Table 4.1. A total of 42 observations were considered and the summary statistics shows that the mean of RGDP is about 37473.69, with minimum and maximum value of 13779.26 and 78549.00 respectively. The mean of official development assistance (ODA), absorptive capacity constraint (ODA^2), aid-policy

interaction (AIDPOL) and crude oil price (COP) are 2575.001, 34808993, 64620.09 and 44.04. Their respective standard deviations are 5372.676, 90814472, 133,703.9 and 30.18268.

Unit Root Test Results

In order to avoid spurious regression results due to non-stationarity of data, stationarity test was conducted to verify the stationary status of the variables using the Augmented Dickey-Fuller (ADF) and Phillip-Perron (PP) tests. The ADF and PP tests results presented in Table 4.2 reveal that the variables were integrated in a mixed order of levels, I(0) and first difference, I(1).

Table 2: Unit Root Test

Variables	ADF Test			PP Test		
	Level	1st Diff.	Remarks	Level	1st Diff.	Remarks
COP	-2.371113	-5.279358*	I (1)	-2.447287	-5.136016*	I (1)
CPI	-2.007452	-5.720472*	I (1)	-2.096399	-5.351738*	I (1)
FDI	-3.229665***	-7.461915*	I (0)	-1.738500	-7.354344*	I (1)
FDP	-1.942349	-6.083742*	I (1)	-1.812857	-9.490015*	I (1)
K	-1.244317	-5.613946*	I (1)	-1.244253	-5.247146*	I (1)
L	-4.809884*	-7.995646*	I (0)	-4.247994*	-14.54925*	I (0)
ODA	-1.306027	-6.273309*	I (1)	-1.065275	-11.24030*	I (1)
RGDP	-1.682571	-3.632222**	I (1)	---	---	---
ODA^2	0.560648	-4.341018*	I (1)	2.716009	-5.601046*	I (1)
TOP	-4.268217*	-9.193002*	I (0)	-4.268217*	-15.91941*	I (0)
AIDPOL	-0.039879	-6.812246*	I (1)	0.116356	-6.812982*	I (1)

Note: *, ** and *** imply statistical significance at 1%, 5% and 10% levels respectively
Source: Author's computation.

COINTEGRATION TEST

The Autoregressive Distributed Lag (ARDL) Bounds testing procedure was employed to examine the cointegration relationship between the dependent variable (RGDP) and the independent variables (L, K, ODA, ODA^2, AIDPOL, COP, TOP, FDI, and FDP). The procedure involved comparing the computed F-statistic with the critical values provided by Pesaran & Shin (1998) for hypothesis testing. The null hypothesis for the ARDL bound test for cointegration is that there is no long-run relationship. Therefore, if the computed F-statistic is less than the lower bound value, the null hypothesis rejected. On the contrary, if the computed F-statistic is greater than the upper bound value, it shows that there exists a long-run relationship among the variables. In a situation where the computed F-statistic lies between the lower bound and the upper bound values, the long-run relationship between the variables becomes inconclusive.   The bound test cointegration result as presented in Table 3, reveals that the estimated variables were cointegrated, hence there exists a long-run relationship between them. This is evidenced by the calculated F-statistic value of 5.265417 being greater than the upper bound critical value of 3.05 and 3.68 at 5% and 1% level of significant respectively.

Table 3: ARDL Bounds Test Result

		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
F-statistic	5.265417	10%	1.63	2.75
K	9	5%	1.86	3.05
		2.5%	2.08	3.33
		1%	2.37	3.68

Source: Author's computation

Chang and Philip (1995) asserted that for time series regression with unknown mixture of I(0) and I(1) variables, the method of FMOLS is applicable to models with some unit roots and unknown cointegrating rank. This method is also applicable in cases of estimation of model involving small dataset for robust parameter estimates. Also, it is required that the variables of the model should be cointegrated for the FMOLS technique to be applied. As stated earlier, the variables of the model were cointegrated and this justified the used of FMOLS technique in this study.

Regression Results

Fully Modified Ordinary Least Square (FMOLS) Estimation Result
The Fully Modified Ordinary Least Squares (FMOLS) estimation result is presented in Table 4. The result shows that the coefficient of official development assistance (ODA) is 3.367297, which implies that ODA exerted positive but insignificant impact on economic growth (RGDP) in Nigeria. The coefficient of the ODA absorptive capacity constraint (ODA^2) is -0.000112, indicating a negative and significant impact on economic growth (RGDP) at 1% significance level. The negative coefficient of ODA^2 indicates the existence of inverted U-shape relationship between ODA and RGDP, which implies diminishing returns of ODA in Nigeria. The positive but insignificant result of ODA in this study affirms that as more aid is received by the country, the positive impact on growth becomes negligible while the negative coefficient of ODA^2 (absorptive capacity constraint of ODA) shows that there is a critical level which further increase in ODA beyond that level will decrease economic growth. This raises the question, how much of ODA is too much? Nevertheless, the positive impact of ODA on economic growth of this study is tandem with Abdul et al, (2018); and Nnamaka, (2021) findings that ODA has a positive relationship with economic growth in Nigeria. The positive though insignificant result concerning official development assistance (ODA) as shown in this study affirms that ODA have had positive impact on economic growth of Nigeria though its full potential had been constrained by weak institution. This is evidenced by the negative coefficient of ODA-institution interaction variable, ODA interaction with corruption index (ODA*CPI). The negative relationship of ODA*CPI with

economic growth suggests that weak institution, especially corruption, had impeded the full-blown positive impact of ODA on economic growth in Nigeria.

Table 4: Fully Modified Least Squares (FMOLS)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
L	0.000418	6.32E-05	6.616704	0.0000
K	1.060696	0.389658	2.722117	0.0105
ODA	3.367297	2.769697	1.215764	0.2333
ODA^2	-0.000112	3.02E-05	-3.692622	0.0009
AIDPOL	-0.079140	0.102551	-0.771713	0.4461
COP	96.32736	43.11528	2.234181	0.0328
TOP	15631.10	7031.497	2.223012	0.0336
FDI	-2.98E-07	5.76E-07	-0.517275	0.6086
FDP	1012.212	312.6892	3.237120	0.0029
C	-5123.917	2335.034	-2.194365	0.0358
R-squared	0.975552	Mean dependent var		38015.54
Adjusted R-squared	0.968454	S.D. dependent var		21980.47
S.E. of regression	3903.992	Sum squared resid		4.72E+08
Long-run variance	8667460.			

Source: Author's computation

As for other variables, the coefficient of labour force (L) and capital stock (K) had positive signs which indicates direct relationship between them and economic growth (GDP) in Nigeria. The implication is that, as labour force (L) and gross capital formation (K) increased, real gross domestic product (RGDP) will also increase. The coefficient of foreign direct investment (FDI) has a negative sign, implying that FDI has a negative impact on economic growth (RGDP) in Nigeria. Crude oil price (COP) and trade openness exerted positive and significant impact on economic growth at 5% level of significance. Lastly, financial deepening (FDP) exhibited a positive relationship with economic growth (RGDP) in Nigeria. The "adjusted R^2 value (0.968454) shows that the explanatory variables explained a total variation of 96.8% in the dependent variable (RGDP). The result is therefore of good fit.

Diagnostic Tests
Diagnostics tests were deployed to verify the viability of the estimated model. The Correlograms Q-Statistics test was conducted to examine the existence of serial correlation. The result is presented in Table 5. The last two columns reported in the correlogram are the Ljung-Box Q-statistics and their p-values. The Q-statistic at lag is a test statistic for the null hypothesis that there is no autocorrelation up to order 20. The Q-statistics are significant up to lag 14 and 15, thereafter;

it was insignificant all the way to lag 20 as depicted by their probability value. This shows that there are serial correlations in the residuals of the model. Furthermore, to examine whether the error term in the model was normally distributed, the Jarque-Bera test statistic for normality was conducted. The Jarque-Bera normality test statistics (1.208983) in Figure 1 indicates that the residual of the model is normally distributed since the p-value of 0.546352 is greater than the significance level of 5 percent (i.e., 0.546352 >0.05).
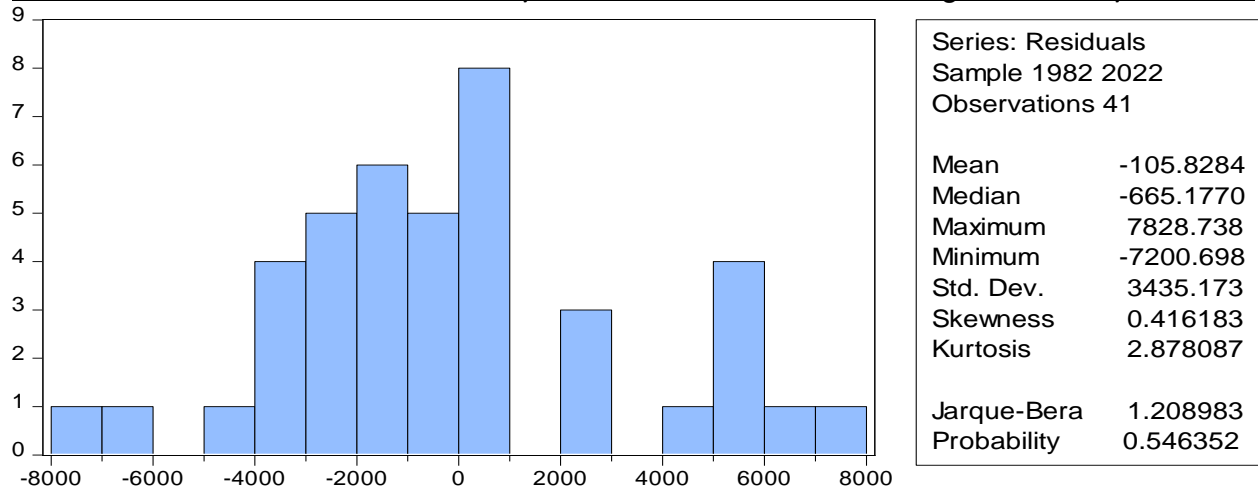
Table 5: Correlograms Q-Statistics

Autocorrelation	Partial Correlation		AC	PAC	Q-Stat	Prob*
.|*** |	.|*** |	1	0.404	0.404	7.2116	0.007
**|. |	****|. |	2	-0.265	-0.512	10.377	0.006
**|. |	.|*. |	3	-0.286	0.135	14.164	0.003
.*|. |	.*|. |	4	-0.104	-0.200	14.676	0.005
.*|. |	.*|. |	5	-0.073	-0.086	14.934	0.011
.*|. |	.*|. |	6	-0.084	-0.082	15.289	0.018
.*|. |	.*|. |	7	-0.095	-0.167	15.760	0.027
.*|. |	.*|. |	8	-0.127	-0.162	16.617	0.034
.|. |	.|. |	9	-0.058	-0.051	16.802	0.052
.|*. |	.|. |	10	0.149	0.073	18.065	0.054
.|*. |	.|. |	11	0.204	-0.054	20.519	0.039
.|*. |	.|*. |	12	0.139	0.143	21.693	0.041
.|. |	.*|. |	13	0.027	-0.075	21.739	0.060
.|. |	.|*. |	14	-0.019	0.109	21.763	0.084
.*|. |	.*|. |	15	-0.083	-0.132	22.235	0.102
.*|. |	.*|. |	16	-0.166	-0.067	24.178	0.086
.|. |	.|*. |	17	-0.047	0.137	24.343	0.110
.|. |	.*|. |	18	0.069	-0.078	24.713	0.133
.|*. |	.|** |	19	0.099	0.221	25.491	0.145
.|*. |	.|. |	20	0.104	0.026	26.397	0.153

Source: Author's computation

Figure 1: Normality Test

Series: Residuals	
Sample 1982 2022	
Observations 41	
Mean	-105.8284
Median	-665.1770
Maximum	7828.738
Minimum	-7200.698
Std. Dev.	3435.173
Skewness	0.416183
Kurtosis	2.878087
Jarque-Bera	1.208983
Probability	0.546352

Source: Extracted from Eviews 10

CONCLUSION AND RECOMMENDATIONS

The paper examined the effect of foreign aid and aid-institutional quality interaction on economic growth in Nigeria for the period (1981 – 2022) using FMOLS method. The result of the study reveals that ODA exerted positive but insignificant impact on economic growth (RGDP) in Nigeria. This indicates that ODA is relevant to Nigeria's economic growth but is not among the major drivers of economic growth in Nigeria. The ODA-institutional interaction variable, ODA interaction with corruption index (ODA*CPI), showed negative relationship with economic growth. The negative relationship of ODA interaction with corruption variable (ODA*CPI) with economic growth suggests that weak institution, especially corruption, had constrained the positive impact of ODA on economic growth in Nigeria. The ODA absorptive capacity constraint (ODA^2) had a negative and significant impact on economic growth (RGDP) at 1% significance level. The negative coefficient of ODA^2 indicates the existence of inverted U-shape relationship between ODA and RGDP, which implies diminishing returns of ODA in Nigeria. The negative coefficient of ODA^2 (absorptive capacity constraint of ODA) suggests that there is a critical level which further increase in ODA beyond that level will impede economic growth. This raises the question of how much of ODA is too much?

As for other variables, labour force (L), domestic capital (K), crude oil price (COP), financial deepening (FDP) and trade openness (TOP) had positive and significant direct relationship with economic growth (GDP) in Nigeria. The coefficient of foreign direct investment (FDI) has a negative sign, implying that FDI has a negative impact on economic growth (RGDP) in Nigeria. The adjusted R^2 value (0.968454) shows that the explanatory variables explained a total variation of 96.8% in the dependent variable (RGDP). The result is therefore of good fit. This study concludes that though ODA contributes to economic growth of Nigeria but is not among the major drivers of economic growth. Also, institutional quality strongly affects the positive impact of ODA

in developing countries, including Nigeria. A weak institution, especially corruption is an impediment to the utilization of full potential of foreign aid in Nigeria. Based on the findings of this study, it is recommended that the government should adopt better and effective macroeconomic policies, improve on the quality of governance and strengthen the relevant institutions to abate the negative impact of pervasive corruption in the country.

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