FOREIGN AID, CAPITAL FORMATION AND ECONOMIC GROWTH IN NIGERIA

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Abstract

This study aims to econometrically assess the impact of donations from international organizations, official development assistance and gross fixed capital formation on Nigeria's economic growth amidst the function that exchange rate volatility plays as a mediator. It used the autoregressive distributed lag model. The research findings indicate that the growth rate of GDP has been adversely affected by donations made by international corporations, exchange rate fluctuations, and gross fixed capital formation. The mediation role played by exchange rate variability in the short-run is significantly adverse with the implication that GDP growth rate is strongly reduced by instability of the exchange rate. The findings of the study revealed that, official development assistance had substantial positive impact on growth rate of GDP. This implies that a surge in the official development assistance and investment favorably contributes to economic growth in Nigeria as measured by GDP growth rate and while the rise in exchange rates only magnifies declining GDP growth rate in Nigeria. According to the quantitative research findings, at the current, one-year, two-year, and three-year lags, respectively, an increase in the ODA as a percentage contributed 0.3%, 1.8%, 0.9%, and 1.9% to Nigeria's GDP growth rate in the near term. This explains that increase in economic growth can be attributed to increment in the value of official development assistance and donations from multinational organizations, and gross fixed capital formation on economic growth in Nigeria. It was recommended that Nigeria should harness fully the benefits of official development. In order to create a source of foreign currency that can be used to finance development, assistance through official channels of remittance that are effective, dependable, and reach remote populations should be promoted.

Keywords: multinational organizations, exchange rate, Inflation rate, remittance, official development assistance, capital formation, GDP

JEL classification: A20, C34, D18

1. INTRODUCTION

The purpose of this research is to empirically evaluate the effect of official development assistance, donations from multinational organizations, gross fixed capital formation on economic growth in Nigeria. The mediation role of exchange rate variation was highlighted the study. Despite having a wealth of natural resources and population, Nigeria is among the world's poorest nations. According to Njoku (2016), this is in line with every UNDP report on human development that has been released since 2003. Thus, this implies the rationale behind Nigeria's inclusion in the list of nations that benefit from voluntary contributions, grants, and other forms of human, capital, and technical assistance called foreign aid. Basically, foreign aid is defined as all forms of grants and loans at concessional financial terms that are aimed at transferring resources from developed to developing countries on development, poverty, and income distribution grounds (Mahr, 2023).

Foreign aid takes three major forms, namely: official development assistance (ODA), donations, and grants (Mahembe, & Odhiambo, 2019). In this regard, Nigeria receives official development assistance, donations, and grants from multinational organizations and international agencies such as UNESCO, the World Bank, and the African Union, among others. These three play a significant role as complements to domestic financing for development in the Nigerian economy (Abiola, 2018). ODA improves the private sector's business climate and even accelerates growth and development. Abiola (2018) further emphasized that ODA is also a crucial instrument for supporting education, health, public infrastructure development, agriculture, rural development, and food security.

Foreign aid inflows such as official development assistance and net inflows from multinational organizations and international agencies have been on the increase in Nigeria in recent times partly due to globalization and interconnectivity of nations. This perhaps has made it possible for multinational organizations to donate capita to support their emerging nations like Nigeria. This has made foreign aid a good source of capital for economic growth in developing countries like Nigeria where capital is always in short supply. Nigeria has benefited from many forms of foreign aid since the early 1980s, yet its socioeconomic development has remained appalling. For the past 50 years; major international institutions, such as the United Nations, World Bank, and International Monetary Fund, gained prominence in global economic affairs have resort to giving foreign aid for purpose of reducing poverty in developing nations (Hjertholm & White, 2000). However, the LDCs particularly Nigeria are still experiencing economic hardship, and this births the research question; is the provision of foreign aid to recipient economies a worthwhile and effective approach to promote growth and development. Nigeria is characterized by low levels of income, high rates of unemployment, very low industrial capacity utilization, and high levels of poverty. In addressing these problems, foreign aid has been suggested as a veritable option for augmenting the meager domestic resources (Fasanya & Onakoya, 2012). While some countries that have benefited from foreign assistance at one time or another have grown such that they have become aid donors

(South Korea, North Korea, China, etc.), the majority of countries in Africa like Nigeria have remained backward (Olagboyega, 2015).

Many of the studies used remittances, grants, capital inflows, and foreign transfer payments as proxy for foreign aid, ignoring other foreign aid indicators such as official development assistance (ODAs) and donations from multinational organizations in Nigeria. Hence, a knowledge gap exists. This constitutes the major significance of the present research as it aims at filling the gap in the literature. Additionally, the study's findings are anticipated to improve Nigeria's policy posture in the direction of economic growth and development. There are five sections altogether that constitute this research; the next is the review of literature. This is followed by the methodology, results and conclusion.

2. LITERATURE REVIEW

2.1. CONCEPTUAL ISSUES

Any financial transaction that a government makes or guarantees for another is referred to as foreign aid. Foreign aid has, in fact, taken center stage in the Third World. Developed democracies have made it a tool of foreign policy to fortify ties with and therefore increase their influence inside the Third World. Aid, according to Ajayi (2010), is a form of assistance by a government or financial institution to other needy countries, which could be in cash or kind. The Breton Woods system in 1944 included the creation of an aid system as one of its tenets. In accordance with the system, there ought to be an unfettered inflow of foreign aid due to a free capital market. Using this premise, Western Europe received a Marshall Aid Assistance of roughly US$17.5 billion to revive her devastated economy as a result of World War II. Since then, the aid system has remained a durable phenomenon of the international economic system (Olagboyega, 2015).

Economic support such as loans, investments in the needy country's economy, infrastructure development, etc. can also be provided via foreign aid. Aid can also come in the form of military assistance, such as the supply of military hardware at subsidized rates, military agreements, bilateral or multilateral, loose or solid or in a defense pact, the supply of military technical assistance, such as military presence to a country in crisis or conflict with another country, the supply of military technical assistance and advice, direct participation as in the case of military allies to other countries, military subversions, coups, assassinations, among others (Olagboyega, 2015).

The Organization for Economic Cooperation and Development (OECD) Development Assistance Committee sees it as official development assistance, which consists of grants or loans that a single government or multilateral organization provides to a developing nation in order to support social welfare and economic development. Inanga and Mandah (2008) conceptualize foreign aid as an international transfer of capital, goods, or services for the benefit of other nations. This assistance, in her opinion, comes in a variety of forms: capital transfers made as grants or loans, whether in cash or in kind; military support in the form of

equipment or training advisors; as well as technical aid and training, typically in the form of grants in the form of human resources and technological equipment. The general understanding of aid as development financing mixes other official flows with official help. The relationship between aid and economic growth has been one of the most controversial issues, theoretically and empirically, in literature. Doucouliagos and Paldam (2005) identified three main channels through which aid affects economic growth; these channels are accumulation, Growth direct, and conditional theoretical models. The accumulation model estimated that the impacts of aid are on either savings or investment and showed that aid has an unclear effect on accumulation. The growth direct model framework used the reduced model of the effect of aid on growth and showed that the estimates of the direct effect of aid on growth scattered considerably and also added up to a positive but not statistically significant effect on growth. In addition, conditional model estimates showed that the effect of aid on growth depends upon a third factor; if it is favorable, it will result in positive growth, and vice versa. However, the inconclusive results of the aid-growth literature are highly undesirable.

Many development scholars like Herbertsson & Paldam (2007), Rajan and Subramanian (2008), and Doucouliagos & Paldam (2008) were interested in searching for new models to explain the implication of aid on the economy. Different output models have explained the importance of economic growth and its implications for human welfare (Sarwar, Khan, Sarwar, & Khan, 2021). The Solow model explained the dynamics of the transition to a steady state and how the low-income countries can meet up with the high-income countries. In 1960, the neoclassical growth model was central to various debates; more emphasis to explain the process of growth was attributed to the Harrod-Domar model (Boianovsky, 2018). All these models focused on growth and its input with less attention to foreign aid. The medicine model, on the other hand, showed that aid works if given in moderation and harms if taken in excess. In other words, the medicine model includes aid with a positive sign and aid squared with a negative sign. Aid helps all countries of the world, but only to a point of optimal. Increasingly aid after optimal is harmful. Consequently, aid should be distributed proportionally to GDP and never exceed the optimal level. The medicine model was used as a general defense for aid. Hadjimichael et al. (1995) first proposed the model, but Tarp and Hjertholm (2000) popularized the model.

2.2. THEORETICAL LITERATURE REVIEW

Several theories on economic growth exist in literature. Some of these theories are the new growth theory, the linear stages of growth theory, theory of coordination failure, structural change theory; and international dependence theory. During the 1970s and early 1980s, the international dependence theory gained a lot of traction. Dependency theorists maintained that underdevelopment results from rich nations' and multinational businesses' hegemony over poor nations. The theory is considered an extension of Marxist theory (Hein, 1992). It is stated that the industrialized countries provide the market and the capital for the poorer countries. However, developing countries received relatively little benefit from the dependent

relationship. Due to the unequal exchange of products and services against the poorer countries, free trade turned into a convenient tool for the industrialized countries to engage in exploitation. The nature of international interactions and the factors that have made it simpler for one group of countries to rely on another are explained by the dependency theory (Kuran, 2024). According to the theory, countries that are economically buoyant and politically stable are termed developed countries, and, on the other hand, countries that are economically backward are tagged developing countries, commonly referred to as Third World countries (Todaro, 2023).

Finding the factors that propel or contribute to the growth of developing countries is the aim of the dependency theory. It is believed that resources shift from a periphery of developing and destitute states to a core of affluent states, favoring the latter at the loss of the former, according to this hypothesis. Dependency theory's basic claim is that, as a result of poor states' integration into the world system, rich states prosper while poor states suffer (Todaro, 2023). Dependency theory holds that without cheap labor, markets, natural resources, and somewhere to transfer their antiquated technologies, wealthy nations could not continue to live the way they do.

Rich countries deliberately use a variety of strategies to keep their citizens dependent. There are many possible facets to this influence, including economics, politics, banking and finance, media control, education, culture, sport, and all areas of human resource development. Wealthy states actively counter the attempts by dependency nations to resist their influences by means of economic sanctions and/or the use of military force (Todaro & Smith, 2023). Dependency theory argues that, contrary to what free market economists frequently claim, the poverty of the periphery countries is caused by how they are integrated into the global system, not by a lack of integration or incomplete integration. There are two philosophical traditions that hold contrasting views on the matter. The bourgeois scholars and the radical scholars of neo-Marxian political economics are two of these groups.

Nonetheless, the underdevelopment and ensuing reliance of the majority of third-world countries (TWCs) are attributed by bourgeois scholars to their inherent contradictions. To them, this problem can be explained by their lack of close integration, diffusion of capital, technology, and institutions, bad leadership, corruption, and mismanagement (Momoh & Hundeyin, 1999). According to this perspective, TWCs' underdevelopment and reliance are caused within rather than by outside influences. According to this school of thought, TWCs can solve the issue by asking for foreign help in the form of loans, investments, aid, etc., and allowing multinational corporations (MNCs) to operate freely. It is argued that development can come through the MNCs mechanism for transferring technology, capital, and skills in management, design, and marketing (Thomas, 1976; Ajayi, 2000). Despite the fact that bourgeois researchers' arguments regarding the reasons behind the TWCs' underdevelopment and dependency as well as potential solutions seem compelling due to the TWCs' subpar sociopolitical records, their analyses are essentially superficial and obscurantist in order to further global capitalist interests.

2.3. EMPIRICAL LITERATURE REVIEW

Zamir, Abbasi, Yu, Sohail, & Yang (2023) studied the interconnection study of public spending on economic growth, education, and primary school enrolment. The results showed a direct correlation in both directions between economic growth and sustained public spending on education. There was no association between national income and government expenditures, according to Goh & Mohd Aznan's (2023) findings' show government spending had a significant impact on Nigeria's economic growth during the study period. Growth and expenditures in education did not significantly connect. Duramany-Lakkoh, Jalloh, & Abu (2022) demonstrated in their study how public spending is used as a stand-in for public capital in many industries. This enables distinction of their respective impacts on economic growth. According to the study, public spending has little immediate impact on growth. According to Onifade, Çevik, Erdoğan, Asongu, & Bekun (2020), there is a favorable long-term correlation between government spending and the growth process. Several studies have been carried out on foreign aid and economic growth in Nigeria. Ugwuegbe, Okafor, & Akarogbe (2016) examined the effect 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 period of 34 years from 1980 to 2013. To ascertain the causal relationship between the variables under investigation, the study used a multivariate regression model with the OLS. Augmented Dickey-Fuller (ADF) was utilized to do the unit root test; the Johansen Co-integration test was employed to ascertain the long-term relationship between the variables; and the error correction method (ECM) was employed to assist in determining the rate of adjustment The findings demonstrate that whereas foreign debt has a positive and large impact on economic growth, foreign aid also positively correlates with GDP, albeit statistically insignificantly, in line with the a priori expectation. This suggests that although it hasn't been felt much, foreign aid is good to Nigeria.

Olagboyega (2015) examined the influence of deregulation on the relationship between foreign aid and fiscal behavior in Nigeria. Based on key fiscal and other macroeconomic variables, the equation describing foreign aid is developed from the well-known two-gap model. The Chow test is used to determine whether structural changes that have occurred since deregulation were implemented have a major impact on the relationship between fiscal behavior and foreign aid. The outcome demonstrates how deregulation has favorably and dramatically impacted Nigeria's fiscal behavior's ability to seek foreign aid. Though government revenue and spending have continued to rise, the impact has recently been short-lived due to a sharp decline in foreign aid accessible to Nigeria.

Rojík, Maitah, Malec, & Abdullahi (2024) analyzed the effects of foreign aid on the economic growth of Nigeria. The research utilized econometric methods, including the Johansen co-integration test, the Augmented Dickey Fuller (ADF) test, and OLS, on data collected between 1981 and 2012. The findings indicate that the GDP of Nigeria and foreign aid have a negative and insignificant relationship. Uremadu (2018) considered the possible determinants of capital formation in Nigeria

for the period 1980 to 2014 using the Ordinary Least Square (OLS). The findings of the study indicated that capital formation was positively impacted by cumulative foreign private investment (CFPI), the Index of Energy Consumption (INDEXEC), and total banking system credit to the domestic economy (BSTCR). Conversely, negative effects were observed on capital formation by gross national savings (GNS), domestic inflation rate (INFR), maximum lending rate (MLR), foreign exchange rate (EXCHR), and debt service ratio (DSR). It was shown that the foreign exchange rate drives capital formation in Nigeria, with the debt service ratio and the energy consumption index following closely behind. In order to reduce the amount of national income used for debt servicing, the paper recommended reducing exchange rate distortions and misalignment, increasing energy supply by supplying infrastructure and electricity continuously to boost industrial energy consumption, and continuously minimizing foreign debts.

Njimanted & Mukete (2017) examined the nature of the causal relationship and the interaction between public and private investment in Cameroon. Using the vector autoregressive technique of estimate and secondary data from the World Bank database between 1980 and 2012 supplemented by other sources, we discovered that state expenditure insignificantly crowds in private investment. Kimaro, Keong, & Lau (2017) examined how government spending and efficiency affected the low-income countries of Sub-Saharan Africa's economic growth. This research makes use of panel data from the World Development Indicators (WDI) database covering 25 low-income Sub-Saharan African countries between 2002 and 2015. Im-Pesaran-Shin and Fisher ADF tests are used in the study to perform panel unit root testing. Panel cointegration tests are also performed in the study using the Pedroni test. In order to address the two study topics, Generalized Methods of Moments (GMM) are finally used. The findings show that rising government spending spurs low-income Sub-Saharan African nations' economic growth.

Udoffia & Godson (2017) looked into how federal government spending affected Nigeria's economic expansion. Finding out if there is a connection between federal government spending and economic growth in Nigeria was the primary goal of the study. The model was estimated by the study utilizing time series data covering the years 1981–2014 and the Ordinary Least Square estimation approach. Federal government capital and recurrent expenditures were employed as the independent variables, and the real gross domestic product was used as the dependent variable. Regression analysis results indicate that capital and ongoing federal government spending have a favorable impact on real GDP. The analysis's source of data was the Central Bank of Nigeria's (CBN) statistical bulletin. The study recommended that federal government should direct more of its recurrent expenditure towards economic and community services as they accelerate economic growth

Omojolaibi, Tochi-Nze, & Ekundayo (2016) explored the nexus between fiscal policy and private investment in five selected West African countries using annual data from 1993 to 2014. Using the Fixed Effect Model for Panel Data Ordinary Least Square Approach, the findings demonstrated that tax revenue and government capital expenditures had a large crowding-in effect, while non-tax

revenue had a crowding-out effect. Although they were negligible, ongoing expenses and external debt also displayed crowding-out effects. The accelerator effect of output growth was also found to be insignificant across the countries over the time period.

Modebe, Okafor, Onwumere, & Ibe (2017) examined the impact of government expenditure (disaggregated into recurrent and capital expenditure) on economic growth from 1987 to 2010. The gross domestic product growth rate was the dependent variable, and current and capital expenditures were the independent variables in a three-variable multiple regression model. The study's findings reinforce the need for increased and supportive private sector investment, as ongoing government spending had a positive and non-significant impact on economic growth, while capital expenditure had a negative and non-significant impact. The relationship between elements of governmental spending and private investments in Nigeria from 1981 to 2010 was examined by Nwosa, Omodadepo, & Oluseun (2016). The study found that different aspects of public spending have varying long- and short-term effects on private investment using an error correction modeling approach. In particular, capital expenditure had a negative (crowd-out) effect on private investment, whereas ongoing and government final consumption expenditure had a favorable effect.

Furceri & Sousa (2017) examine how government expenditure affects the private sector and determine if crowding out or crowding in effects occur. Using panel data spanning from 1960 to 2007, their findings demonstrate how government expenditure has a significant crowding-out effect on private investment and consumption. Atukeren (2016), in understanding the relationship between public and private investment, used Granger causality methodology for a sample of twenty-five developing countries in Africa, Asia, and Latin America over the period 1970-2000. According to his findings, private investment is stimulated by state investment. Using the probit model, he discovered that public investment is more likely to crowd out private investment the more the government is involved in the economy, the less trade openness there is, and the more stable the macro and monetary environment is.

Erden & Holcombe (2016) considered the effect of public investment on private investment in developing economies by applying several pooled specifications in a standard investment model to a panel of developing countries for 1980 to 1997. They observed that public investment complements private investment, although private investment is constrained by the availability of bank credit. A panel of industrialized nations is subjected to the same empirical models. In established economies, governmental investment tends to supplant private investment, in contrast to developing economies.

Kollamparambil & Nicolaou (2017) used quarterly data from 1960 to 2005 to analyze the nature and relationship between public expenditure and private investment in South Africa. They discovered that while governmental investment neither directly nor indirectly suppresses private investment, it does so through the accelerator effect. Consequently, they urged that a more aggressive fiscal policy be

put in place to raise the GDP-to-investment ratio, which has the potential to spur faster rates of growth.

Mohammed (2024) investigated the long-run equilibrium drivers of GDP growth using the ARDL-Bound test approach. Their results demonstrate that consumption and investments were significant positive stimulants of economic growth in Saudi Arabia. Using the vector autoregressive and Johansen approaches, Keji (2021) revealed that the estimated coefficients of human capital had a strong long-term impact on Nigeria's economic growth from 1981 to 2017. A Johansen co-integration technique and an error correction methodology were employed in the investigation. The results have a significant impact on Nigerian educational policy. The study suggested that in order to accelerate growth and lead to economic development, officials in Nigeria should make a concentrated effort to increase investment in education.

Chiadika & Egbon (2024) probed into the impact of government spending on Nigerian economic growth. Using ARDL regression analysis; real gross domestic product was selected as the dependent variable, and government capital expenditure and government recurrent expenditure are the independent variables. The study reported that in Nigeria, the relationship between government spending and GDP growth rate is in equilibrium over the long term, according to the results of the Granger causality test, Johansen co-integration test, and error correction mechanism. Also, the Nigerian economy's expansion rate and government spending are strongly associated.

The role of human capital and aid in fostering Nigeria's economic growth was examined by Fashina, Asaleye, Ogunjobi, & Lawal (2019). The study employed two models: the first was used to assess the applicability of the medicine model in Nigeria, and the extended model used the Engle-Granger and VECM estimation techniques to examine the impact of aid and human capital shocks on growth. The findings of the first model validate the Medicine Model's hypothesis by indicating that continuous increases in foreign aid flows beyond a certain point (the optimal point) may have a negative impact on growth. Evidence from the study's extended model shows that, in the long run, the reaction from aid shock is insignificant, but Nigeria's growth is susceptible to human capital shock through education.'

Olabode & Mohammed (2020) examined the impact of foreign aid (FA) on the Economic Development of Nigeria for the period of 1986-2018. For the purpose of acquiring knowledge, the study examined earlier research in the field and used secondary data. After performing the series' unit root and Johansen co-integration tests, we used the vector error correction model (VECM). According to the study, there is a slight but favorable correlation between Nigeria's GDP and foreign aid flow (FAF). That is, it doesn't have an effect on the economy that the general public may experience. Empirically, single country analysis between human capital and foreign aid in promoting sustainable growth and development is still growing. In examining the relationship between aid and growth for the Spanish economy, Camps-Cura (2016) observed that there is a positive relationship between economic growth and human capital. The scholar stressed that Spain backwards in the

international standard is as the result of low investment in human capital. In a related development, the findings by Gyimah-Brempony & Asiedu (2008) showed that there is a positive relationship between aid and primary school enrollment and as well on completion rate for the periods examined. World Bank (2024) stressed that African Countries are faced with numerous challenges investing in human capital, in other to improve this situation and promote a knowledge based economy, aid amongst other measures has been identified to achieve this goal (Meier, 2005). The scholars showed that there is a positive relationship between education aid and human well-being in low-income economies. In a similar study carried out by Michaelowa & Weber (2007) examined the impact of aid on education. The scholars divided education into three as follows: primary completion; secondary and tertiary.

The findings of Eseyin, Olufemi, & Awe (2024) showed that there is a positive relationship between education and Foreign aid, human capital and economic growth nexus: Evidence from Nigeria education aid but pointed out that the effects are relatively small. The general difference might vary in individual countries; each individual country has determinants for growth because of differences in economic structure and region. Consequently, the empirical specification approaches for most cross-country analysis may not be applicable to a single country study. Bayar, & Gogoberishvili (2023) pointed out that differences in growth process may not be useful in explaining the growth process over time for a single country study in panel studies. Some of the reasons given by the scholars included: differences in institution and governance; change of variables over time and time involved in growth process which can be best captured in time series data. Secondly, the technique of estimation differs, most especially time series properties are taken into consideration such as stationary of the variables and co-integration. Thirdly, the observations used for examination based on the access to data may not be appropriate for the technique of estimation. Most of the results given the periods of observation and availability of data faced numerous problems of measurement and interpretation. Most of the single country analyses have focused on foreign aid and economic growth with less emphasis on human capital. Recent studies like: Fang & Chang (2016); Fashina, (2016); Lawal et al, (2016); Teixeira and Queiro (2016), Qadri & Waheed (2014), Schundeln & Playforth (2013) focused on human capital and economic growth with less emphasis on foreign aids. This study tends to fill the gap in the economic growth-determinants literature by examining the link between economic growth, human capital and aid. Also, promoting inclusive growth has been one of the main recent challenges in developing economies especially Nigeria; Oloni, Asaleye, Abiodun & Adeyemi, (2017). Maximizing the benefit from foreign aid human nexus can help to promote pro-poor growth for developing economies. In Nigeria, most of the studies focused on foreign aid, economic growth, foreign debt, governance, exchange rate, wages and employment; Oloni et al. (2017); Isola, Oluwafunke, Victor & Asaleye, (2016) among others. This study can be distinguished from the above studies by investigating the efficacy of the three gap models i.e. the saving-investment gap, trade gap and the fiscal gap in economic growth and human capital in Nigeria.

3. METHODOLOGY

The study is rooted on the three-gap model, beginning with savings-investment gap. The saving-investment gap refers to a gap between total savings and total investment in a given nation. Next, is the FX otherwise known as the trade gap and it refers to the discrepancy between export and import. The third gap is the fiscal constraint gap. The model is mathematically deduced in term of the macroeconomic identity otherwise known as the national income identity. This is given as:

$$GNP = C + I + (E - M) \quad (1)$$

where *GNP* is gross national product, *C* is consumption expenditure, *E* is exports, *M* is imports, *S* is saving, *I* is domestic investment-capital formation. Since the use of resources is always equal to sources of resources; we have the following equation:

$$GNP + M = C + I + E \quad (2)$$

Taking away the consumption expenditure (C) from both sides of equation (2) we get:

$$GNP - C + M = I + E \quad (3)$$

But $GNP - C = S$ such that leakages are equal to injections. Hence, we have equation (4):

$$S + M(Leakages) = I + E(Injections) \quad (4)$$

$$M - E(\,foreign\ exchange\ gap) \equiv I - S(savings\ \ gap) \quad (5)$$

Given that foreign transfers are equal to the excess of imports over exports, we have equation (6):

$$M - E \equiv F - J \quad (6)$$

Where in line with the balance of payments, *F* is net capital inflows and *J* is net factor services to foreign countries. Thus, combining equations (3) and (6), we have:

$$GNP - C + F - J \equiv I \quad (7)$$

Equation (7) generates the investment level limited by savings. Thus, it demonstrates that the sources of domestic capital formation (investment) are internal savings, capital inflows or foreign transfers (remittances, official development assistance). The methodological formulation extends to the fiscal gap which refers to a gap between government revenues *(T)* and expenditures *(G)*. The three gap model formulation is as given in equation (8).

$$(I - S) + (F - J) + (T - G) \quad (8)$$

In effect, aggregate investment *(I)* comprises private and government investment spending government investment in infrastructure and basic industries

plays a major role in latecomer development and sets a ceiling on the amount of viable private investment that can happen.

The fiscal gap means that when government resources for imports and investment are limited due to debt service, government initiatives to encourage private investment, among other things, may be curtailed. There is empirical evidence showing that government expenditures in Sub-Saharan African countries have been curtailed by foreign debt service despite the initiatives of Highly Indebted Poor Countries (HIPCs) (Olagboyega, 2015; Ugwuegbe, Okafor & Akarogbe, 2016; Bakare, 2017). External resources allocated to the government budget could therefore help close this fiscal deficit. In contrast, if aid is in the form of a loan and not a grant, it may have adverse implications for savings, foreign exchange, and fiscal gaps in the long run and for macroeconomic performance in general (Olagboyega, 2015). For instance, repaying debt increases the need for foreign cash and overall government revenue. This is supported by the view of Hjertholm (2016) when he points out that "a loan aid inflow may fill the trade gap today but necessitates a faster rate of export growth in the future for the country to become independent of foreign inflows'' (White, 1992b). Also, debt service can result in the reduction of import capacity of the government, thus reducing government investment, particularly in infrastructure, education, and health facilities, a factor that is likely to affect negatively private investments and economic growth. Hence, the three-gap model was adopted as the theoretical model for examining the effect of foreign aid on economic growth in Nigeria. For the purpose of analyzing the effect of foreign aid on economic growth in Nigeria, this study has adapted modify the model by Ugwuegbe, Okafor and Akarogbe (2016). The study adopted Autoregressive distributed lag method (ARDL) which model is specified as follow:

$$GDPR = f(ODA, DOMO, EXR, GFCF) \quad (9)$$

$$GDPR = \beta_0 + \beta_1 ODA + \beta_2 DOMO + \beta_3 EXR + \beta_4 GFCF + \mu_i \quad (10)$$

$\beta_0 > 0, \beta_1 > 0, \beta_2 > 0, \beta_3 > 0, \beta_4 < 0, \beta_5 > 0.$

where: GDPR = Gross Domestic Product growth rate (%), ODA= Official Development Assistance (N Billion), DOMO = Donations from Multinational Organizations (N Billion), EXR = Foreign exchange rate, GFCF = Gross fixed capital formation (N Billion), β_0 = Constants, $\beta_1, \beta_2, \beta_3$, and β_4 = slope of the estimates, μ_i = Error term.

In terms of a**priori expectation; a**ll the variables except inflation has direct relationship with growth. Based on Harrod-Domar growth model and the three gap theory, economic growth increases with foreign capital (foreign aid) and capital formation while inflation has inverse relationship with economic growth because it decreases the purchasing power of money while real money value remains constant. The data used for this research were sourced second-hand from Central Bank of Nigeria Statistical Bulletin, (2020) (estimated), World Development Indicator (2020) (estimated), the Institute of Social and Economic Research (ISAER), National Bureau of Statistics (NBS), textbooks of Economics, journals articles and seminar paper.

4. EMPIRICAL ANALYSIS

We begin this section with the test for Stationery and Co-integration. Since this study deals with time series macroeconomic variables, there is a need to test for unit root in each of the variables employed. The unit root test is carried out using the Augmented Dickey-Fuller (ADF) which is designed to examine the order of integration of the variables.

Table 1: *Summary of Stationarity Test*

Variables	ADF Stat.	Critical Level	Order of integration
GDPR	-6.109075	-2.936942	1(0)
ODA	-3.302709	-2.936942	1(0)
DOMO	-5.004330	-2.938987	1(0)
EXCR	-5.296355	-2.938987	1(1)
GFCF	-3.884387	-2.938987	1(0)

Source*: Authors' estimation using E-views*

The summary of stationarity results presented above shows that all of the variables included in the model have a stable mean. Specifically, gross domestic product growth rate (GDPR), official development assistance (ODA), donations from multinational organizations (DOMO), and gross fixed capital formation (GFCF) became stationary at level. However, exchange rate (EXCR) became stationary only after the first difference. The implication of this result is that the conditional mean value of GDPR, which is the dependent variable, given each of the regressors is unstable, thus the estimated impact of each of the regressors derived from the specified relationship may be misleading There is a good chance therefore that the relationship that exists between the set of regressors and the explanatory is due to a trend effect and not a causal relationship. Unless a relevant test on the existence of a stable mean average value of GDPR conditional upon each of the regressors is performed, the analysis carried out in this case may be misleading. At this juncture, the co-integration test comes in handy.

Table 2: *ARDL Bounds Co-integration Test Results*

	F-statistic	19.42775
	K	4
Significance	Lower Bound	Upper Bound
10%	2.2	3.09
5%	2.56	3.49
2.5%	2.88	3.87
1%	3.29	4.37

Source*: Authors' estimation using E-views*

Table 2 above displays the outcomes of the ARDL Bounds test for the model. The results demonstrate that the factors have long-term associations with one another. It is therefore possible to conclude that there is a distinct long-run association among the variables because the lower and upper bounds at 10%, 5%, 2.5%, and 1% significance are smaller than the computed value.

Table 3: *Long Run ARDL Regression Estimates*

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	20.09841	8.435725	2.382535	0.0258
GDPR(-1)*	-1.027745	0.125186	-8.209742	0.0000
ODA(-1)	1.943374	0.539544	3.601885	0.0015
DOMO(-1)	-0.002866	0.000938	-3.054132	0.0056
EXCR(-1)	-1.340884	0.301752	-4.443658	0.0002
GFCF**	-4.91E-10	3.69E-10	-1.328265	0.1971
D(ODA)	0.281642	0.242213	1.162789	0.2568
D(ODA(-1))	-1.807888	0.432541	-4.179695	0.0004
D(ODA(-2))	-0.934477	0.311993	-2.995182	0.0065
D(ODA(-3))	-1.863417	0.275740	-6.757888	0.0000
D(DOMO)	-0.000836	0.000853	-0.980584	0.3370
D(EXCR)	0.540126	0.212017	2.547559	0.0180
D(EXCR(-1))	-0.678298	0.299191	-2.267105	0.0331
D(EXCR(-2))	-0.684091	0.250820	-2.727418	0.0120

Source*: Authors' estimation using E-views*

Table 4: *Short Run ARDL Regression Estimates*

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(ODA)	0.281642	0.086789	3.245135	0.0052
D(ODA(-1))	1.807888	0.215526	8.388249	0.0000
D(ODA(-2))	0.934477	0.200199	4.667735	0.0001
D(ODA(-3))	1.863417	0.192085	9.701003	0.0000
D(DOMO)	-0.000836	0.000535	-1.562546	0.1318
GFCF	-1.084109	0.083692	-12.95355	0.1971
D(EXCR)	-0.540126	0.171782	-3.144262	0.0045
D(EXCR(-1))	-0.678298	0.168488	-4.025796	0.0005
D(EXCR(-2))	-0.684091	0.183510	-3.727809	0.0011
CointEq(-1)*	-0.5027745	0.086275	-5.8275804	0.0000

Source*: Authors' estimation using E-views*

Table 3 presents the long-term estimated findings. The outcome shows that at the current and different lags, official development aid (ODA) has a positive value of 1.943374 and a significant impact on the rate of economic growth. This suggests that during the reviewed time, official development assistance had a significant beneficial impact on GDPR. The slope coefficients' corresponding t-value of 3.601885 is statistically significant at 5%, indicating a positive and significant influence of the variable on the dependent variable. Similarly, contributions from international organizations have a negative average impact on GDPR of -0.002866, which results from a percentage rise in the former. The effect of donations from international organizations on GDPR is likewise statistically significant, according to the t-statistic criteria of -3.054132. According to the t-criterion, the currency rate has a considerable impact on GDPR; on average, this impact is positive, assuming all other factors remain constant.

This implies that a percentage rise in the exchange rate causes the GDPR to rise by the indicated amount. On the contrary, according to Makine & Isiaka's study

(2020), gross fixed capital formation has an exact inverse impact on GDPR for the time under examination and does not show a meaningful impact. At least according to the previously mentioned t-statistic criterion, the variable fails the statistical significance test.

Table 4 displays the short-run model's outcome. The findings show that, at the 10% level of significance, there is a short-run negative and substantial correlation between the exchange rate and economic growth. In the near term, an increase in exchange rates of 1% will result in an increase in economic growth of roughly 0.54%. This finding suggests that capital formation has not favorably contributed to Nigeria's economic progress. Its detrimental impact on growth may have resulted from inadequate infrastructure development to support businesses as well as inadequate funding provided by the Nigerian government to the sector of medium-sized and small enterprises. The findings show that official development assistance (ODA) significantly affects the rate of economic growth at the current and various lags, with positive values (0.281642, 1.807888, 0.934477, and 1.863417) respectively. This suggests that during the reviewed time, official development assistance significantly and positively contributed to the growth rate of GDP in Nigeria.

Moreover, the error correction term lag by one period (ECT-1) has a negative sign in its coefficient, which is statistically significant at the 1% level. This implies that about 50% distortion of the equilibrium of GDP growth rate in the short run was corrected within a year toward the long run. Essentially, the error term coefficient quantifies the speed at which economic growth rate is adjusted from short-term distortions to its correct long-term adjustment. The implication for this is that it will not take much time for the economy to be revamped.

5. CONCLUSION

The objective of this study is to provide an empirical assessment of the impact of official development assistance, donations from multinational corporations, and gross fixed capital formation on Nigeria's economic growth. The study focused on the mediation function of exchange rate fluctuation. Based on findings, it is concluded that foreign aid from multinational organizations and official development assistance, promotes economic growth in Nigeria. Based on the findings of this study the following recommendations are made: To harness fully the benefits of official development assistance (ODAs), formal channels of remitting which are efficient, reliable and goes down to the rural communities should be encouraged so as to provide a source of foreign exchange which can be used for development financing. Net inflows from multinational organizations should be directed towards investment channels by increasing investment opportunities in the country. Nigeria can improve her economic growth performance not only by investing on the traditional trade but also by strategically harnessing the contributions of remittances from citizens living in diaspora. Macroeconomic variables such as exchange rate and inflation rate should be kept stables to encourage remittance inflow into Nigeria.

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