

Foreign Aid, Corruption, Economic Growth Rate and Development Index in Nigeria: The ARDL Approach

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Received: June 15, 2020

Accepted: August 13, 2020

Online Published: September 13, 2020

doi:10.5430/rwe.v11n5p348

URL: <https://doi.org/10.5430/rwe.v11n5p348>

Abstract

Foreign aid when properly utilized is expected to grow the economy of the receiving nation. Over the years Nigeria has benefitted from foreign aid inflows in a bid to stabilize its economy and build its infrastructure. This study desires to look into how the various foreign aid components (humanitarian aids, project aids, and programme aids) have impacted the Nigerian economic growth rate and human development index using the corruption index in the country as a moderating variable. The ex-post facto research design was adopted and data obtained from the Central Bank of Nigeria (CBN) Statistical Bulletin from 1990 to 2019. The study adopted the autoregressive distributive lag (ARDL) techniques. It was revealed that as a result of the corruption index, there was a significant negative effect of foreign aid on the growth rate of Nigeria economy in the long-run, while having a significant positive impact on the human development index as well. In the short-run, foreign aids had a significant positive effect on the growth rate of the Nigerian economy, but an insignificant negative effect on the human development index. However, the government is encouraged to ensure that foreign aid is effectively channeled into agriculture, health, education, and other productive areas.

Keywords: foreign aid, human development index, economy growth rate

1. Introduction

For a developing country like Nigeria especially with its poor infrastructure and activities of insurgence (Boko Haram, banditry, amongst others) it cannot but sometimes rely on foreign aid inflows. Foreign aid is an important source of foreign exchange it also enhances the international exchange of capital goods or services from a nation or foreign institution for the growth of the benefitting country. These aids can come in the form of economic, military or humanitarian aids this involves the transfer of technical training and advice, or financial commodities or resources. Official development assistance (ODA) is the major source of aid for most nations it can be a bilateral grant from one nation to another, some of the aids may be in form of credit, and it can be channeled through either foreign organizations or non-governmental organizations (NGOs). Foreign aid, therefore, is a tool used by advanced nations and multinational institutions in supporting economic growth and development efforts of growing nations.

Foreign aid refers to the flow of assistance from top income countries to middle or lower-income countries, and plays a supplementary role in domestic sources of finance to increase the amount of capital stock and investment. Bakare (2011) suggested that several means by which aid can enhance the growth and development of the economy; thus aid increases: physical and labour capital investment, technological facilities that will increase productivity and ensure endogenous technical growth. The Organization for Economic Cooperation and Development (OECD) view official development assistance (ODA) as aids targeted to developing nations to encourage their welfare and economic development. This type of aids may also come in the form of food aid, technology, multilateral flows as well as funding construction projects directly.

The major thing that foreign aid is expected to do for the receiving country is economic growth and development, which should help alleviate poverty. Gomanee, Girma & Morrissey (2003) suggested that foreign aid inflow has a

positive effect on economic growth, if it is well channeled to the productive sectors of the economy, in that, any economy where investment cannot be sustained only by savings generated domestically or through imports funded by the nation's own export earnings, funds can be sent from foreign countries in the form of either grants or remittances to support.

Girma (2015) suggested that foreign aid may help to determine the economic growth rate and human development index. In developing countries, the emphasis has been placed on improved human development index as a holistic source of economic growth. Investment in human development index (such as gross national income per capita, mean years of schooling, life expectancy at birth, mean years of schooling, and expected years of schooling) is far below slightest condition in many less-developed nations, thus, foreign aid is an alternate fund that can be channeled for the desired economic growth rate and development index. Nigeria still suffers from the serious economic down-turn and low human development ranking, despite the level of funds that flow into the country as aid each year. According to the development report of 2019 by the United Nations Development Programme (UNDP) Nigeria is ranked 158th out of 189th.

Given the perceptions of public sector corruption (administrative and political corruption) in Nigeria and the fact that foreign aid distribution arguably are usually handed over to local authorities for distribution among their fellow citizens at its own discretion, thus, these activities could be ripe territory for corruption. The aids designated for development programs and projects in different areas may sometimes be diverted by corrupt government personnel who should rather direct the successful achievement of such programmes or projects. Clearly, the aid earmarked for development may not be properly channeled but rather it is misappropriated and often times digressed into non-aid projects. The agitation for continuous flow of foreign aid to the local economy to help solve the various developmental and insurgent problems is endless but what impacts does it actually make to the overall performance of the economy and human capital development. Given the controversy of scholars on if developing countries need more aids or not the aim of this study is to empirically examine foreign aid, corruption, economic growth and development in Nigeria.

2. Literature Review

Foreign aid is an influx of capital that plays a catalytic role in developing a country. The financial wants of less-developing countries are enormous that private international investment cannot solve the problem of financing alone. It is important to note that, private international investment has little to do with social spending especially in areas like medical programs, research, health, education, technical training, etc. These areas though indirectly enhance economic stability and efficiency does not yield immediate direct returns, therefore they can be funded with the grants gotten from developed countries and international institutions (International Monetary Fund (IMF), 2006). Foreign aid is official development assistance given to promote the development and to combat poverty. For instance, the World Bank, the United Nations Children's Fund (UNICEF) and the International Monetary Fund (IMF) have made available substantial amount of aid funds to nations and to non-governmental organizations that engage in aid activities (Eregba, 2009).

By definition, human development index (HDI) is a swift effort aimed at evaluating the long-term developmental progress premised on three primary indexes of human development: a healthy and lengthy life, the sound standard of living, and appropriate access to expected knowledge. Accordingly, life expectancy is a product of a healthy and lengthy life, while the level of knowledge is a product of the average years of schooling among the adult population, measured as the mean number of years of schooling an average person aged about 25 years and above would attain in his or her life-time; and appropriate knowledge and learning skills by the number of years expected of children to attend school given an entry school-age, that is, the expected number of years a child of schooling-entry age is expected to school if fundamental forms of age-specific enrolment rates are to remain the same throughout the life span of the child.

The dashboard of measuring HDI has about 14 basic parameters associated with the standard of living, quality of education, and quality of health. The measuring parameters for quality of health include the number of hospital beds, number of physicians and consultants, and lost health expectancy. The measuring parameters for quality of education include science and reading, the percentage of internet-based primary and secondary schools, primary school teacher-pupil ratio, the total amount of well-trained teachers in primary school, and the programme for internal student assessment (PISA) mathematics scores. The parameters for measuring the standard of living are premised on the accessibility and usage of enriched sanitation amenities by a proportion of the population, access to the power supply by a proportion of the rural dwellers, the proportion of people having access to enhanced and healthy drinking water and the proportion of labour force involved in vulnerable employment.

Nigeria's HDI value for 2018 was 0.534 this place the nation at the 158th position out of 189 nations. However Life expectancy in Nigeria between the period of 1990 to 2018 increased by 8.4 years while the number of years expected for schooling increased by 3.0 years, the average years of schooling also increased by 1.2 years and there was also an increase of 57.9 per cent for GNI per capita in Nigeria within this periods leaving the overall human development index at 0.534. In summary, Nigeria has consistently remained in the bottom third of the overall indicators.

Some writers have held a firm opinion that foreign aid may exacerbate inequality. Foreign aids do so by encouraging systemic corruption, promoting uneven educational access, rent-seeking, and may help in facilitating or promoting economic, social and power for a proportion of elite whose agenda is primarily to commercialize and politicise aid donors. Consequently, foreign aids inflow in less developed countries may enhance the existing inequality and therefore contributes to the perpetuation of poverty. Foreign aids sometimes influence the politics of the recipient country. Therefore, countries relying on aid funds must act in the best interest of donors by heeding to their biddings in carrying out programmes and projects that meet the donors' aspiration (Banerjee & Rondinelli, 2003). Although foreign aid may be viewed as increasing the resources available to the dependent nations, the aid funds sometimes may not get to the intended target (helping the poor). In some cases, the aid funds may have been diverted or mismanaged by the elite in connivance with certain officials in government (Boone, 1997; Collier & Dollar, 2004). In this instance, foreign aid may uphold and extend existing inequalities in income and political smack.

Foreign aid contributes to increasing corruption, which has a negative influence on aid on the recipient country (Charron, 2011; Okada & Samreth, 2012). The opinion from these studies argued that the providers of aid funds would often set pre-conditions that the beneficial nations must meet or possible specific reforms to be initiated before they can assess the aid funds in order to enhance governance quality and effectiveness, and eventually reduce the high level of corruption. However, the study by Svensson (2000) did not find any empirical evidence that nations regarding to be less corrupt received systematically more aid funds. Hence, a later study by Alesina and Weder (2002) revealed that countries that are considered more corrupt assessed more aid funds. Using data from about 120 developing nations, Okada and Samreth (2012) analyzed the impact of aid funds on corruption in these countries from 1995-2009. The study employed various forms of aid funds (such as bilateral aid, multilateral aid, and total aid from four major donors – United States of America, Japan, United Kingdom, and France), legal origin and democracy, per capita income as exogenous variables. By employing the quantile regression technique, aimed at aiding in the analysis of the impact of aid funds on corruption at different breaks on the corruption spreading, it was revealed by the study that aid funds reduce corruption entirely, and such reduction has a substantial influence on low-corruption countries. The findings of the study are predicated upon the reasoning that aid fund is likely to be utilized most appropriately in low-corruption economies, which, inter alia, may enhance governance efficiency and effectiveness of institutions, thereby, resulting in reduced corruption profile. The study further revealed that multilateral aid was more effective than bilateral aid in reducing corruption profile (except for aid from Japan), which is as a result that multilateral aid is mostly predicated upon the commitment of the recipient nations toward efforts to reduce corruption and advance the quality of institutions.

Owing to the intricate linkage between development and health, there exists a growing interest in discovering how investments in the overall health of the people in a nation contribute to its economic growth and development. It is argued that if the people involved in productive activities are found to be healthy, they may be able to meaningfully work towards higher productivity, which can result in enhanced economic growth and development. According to Winters (2010), aid critics have argued that aid fund is insignificant and uphold that the volume of dollars amounting in billions may have been transferred to poor nations primarily in order to improve the standard of living of the populace, but realized to be disastrous, resulting in more than a billion people subjected to abject poverty. Over the past decade, huge financial facilities in form of aid funds have been committed by donors in order to reduce the high rate of maternal deaths in developing nations yet, high degrees of maternal deaths are still prevalent in many parts of the world. It is estimated that in 2015 about 99% of maternal deaths were recorded in low and middle-income nations and about a per cent in the developed nations of the world (WHO, 2015). According to Proulx, Ruckert and Labonte (2017), most of the donor nations have committed to increasing their aid funds to the nations with the poorest parameters with the sole purpose of achieving a reduction in the rate of maternal mortality levels in those nations.

On literacy level, educationists have repeatedly pointed out that it is commonly possible to examine the effect of aid funds in support of interventions in health than that of education; there is more visible in improvement in mortality rates in the short term than the increase in learning. This is due to the fact that acknowledgement is typically multidimensional as aid fund has been channelled into a variety of interventions such as teacher education and training, development of curriculum, construction of classrooms, programmes to reduce drop-out in schools, girls' scholarships, school feeding programme aimed at different educational levels and employing different aid measures.

Leeuwen and Darriet (2016) found that foreign aids effectiveness is a point of controversy in developed countries. Foreign aid has however been found to advance the distribution of income giving the existence of good and quality institutions (Calderon, Chong & Gradstein, 2009). Juselius, Moller and Tarp (2014) and Asari, Baharuddin, Jusoh, Mohamad, Shamsudin and Jusoff (2011) found that aid may influence economic growth, when it is combined with a 'good' fiscal and monetary policy. Furthermore, programme aid is usually tied to the receiving countries budget and its specific expenditures and development plans for the country. The important distinction is that project aid carries added restrictions on its use. Since aid is usually been project-tied where possible, it has become identified with aid not nominally used in investments in productive activities, or in other words, with that used for maintenance of imports (Stojanov & Stielkowski, 2013).

On the other hand, humanitarian aid has achieved in sustaining life, giving food, healthcare and medicines to the destitute which reduces diseases in areas prone to insurgence. It also provides water, sanitation and shelter to those who have lost their homes (United Nations Development Programme (UNDP), 2019). However, given the problems in areas that are at war funds are depleted for development as more aids are directed to meet humanitarian wants.

Despite the universal rights of everybody to food, hunger remains a daily reality for a lot in the world (United Nations, 2017). In past years, aids given through food have been a popular way of reducing global malnourishment and sustainability. Though the amount and groups of donors that participate in humanitarian aid have increased in recent years, most function under a set of universally accepted, a humanitarian norm which is to protect the destitute decrease morbidity and mortality, to alleviate poverty, increase well-being, and human status. World Bank (2015) suggests that countries with effective monetary, fiscal and trade policies show a high positive effect of aid. The principal objective of foreign aid was to reduce poverty, provide essential relief, maintain peace and increase infrastructures. Changes in the global economic and political environment have affected ODA in a way that has made some question the potency of foreign aid. In fact, in the 1990s foreign aid decreased by about one third, it may be attributed to the fact that donor countries assumed that it was no longer achieving its targeted objectives (Ouattara, 2003).

One of the developmental problems affecting Nigeria currently is how to lessen the high level of poverty constantly affecting its populace. At the pivot of the problem is how the nation successfully caters for over 140 million people. However, researchers' thoughts vary on the ability of foreign aid to speed the process. It is observed that a valid squabble for foreign aid is that it should foster poverty reduction in an economy (Adofu, 2010). The essence of the development goal of poverty reduction and hunger is highly proven as the number one goal of the eight Millennium Development Goals (MDGs). Morrissey (2001) expressed concern by the call by international communities that in order for developing nations to meet up with the MDGs by 2015, there should be an increase in foreign aid of industrialized nations from 0.24 to 0.7 percent of its present GNP. However, they debated that an enormous increase in aid flows could cause a couple of problems for the lower-income nations. For instance, if the developed countries successfully meet its ODA objectives, financial aids should rise to about \$175 billion, a bit above its current level by three times. To enable that increased ODA is used effectively in the prevailing fight against poverty globally, they argued that donor countries need to look closely at the different types of parameters it can use in deciding on how to distribute aids, both among nations and among complementary programmes to alleviate poverty globally.

While there are various whys and wherefores why foreign aid is given, a huge reason why such aid is given is that this aid should enhance the growth rate of the economy in these countries, which are receiving aid. In the last few years, there has been a huge demand for more foreign assistance to Nigeria in order to help eradicate the country's poverty and manage insurgency. Advanced countries, international institutions, and other Philanthropists have all made renewed requests for a huge infusion of developmental aids to Nigeria. People who support the notion that more aids should be infused hopes that increasing more foreign assistance would eventually benefit the entire population of the country. Experts over time have propagated various poverty-related models that have various consequences on foreign aid. These models include the project intervention (infrastructure, health, and education) and the big push models. Therefore, for countries, like Nigeria, foreign aid is of great concern, in that, foreign aid accumulates funds from various parts of the globe to bridge the existing investment gap. A prominent feature of the relationship between developed and less developing countries since the 60s' is foreign aid. Foreign aid has been the main source of external finance for most of the countries in Africa such as Nigeria since they achieved independence. From a development standpoint, aid was first thought of in light of the post-world war II environment in the view of a certain "development paradigm" where low-income countries were seen to be caught in a low-income equilibrium net which made them not able to accumulate enough savings to increase capital formation and quick growth. Even though the predominant nature of foreign aid has changed reasonably, from project finance in the 1960s to adjustment support in the 1980s, its economic usefulness to receiving countries has remained steadfast (Knack, 2000).

Knack (2000) held that increased aid reliance serves as a cushion for weak governance and bad economic policies in dependence nations by giving them a crutch. The World Bank has consistently acknowledged that the degree of increase in foreign aid bundles to developing nations has involuntarily contributed to the “opportunities of malfeasance”.

It is important to note that foreign inflows could usually include foreign assistance, foreign investment, or foreign borrowing. Foreign assistance unlike foreign borrowings and investment does not bring about the outflow of funds by the recipient country or possible repatriation of capital or profit. The beneficial essence of foreign assistance should be more sustainable than the overall essence of all foreign inflows. Amakom, Ezema and Okeke (2010) observed the role of better-quality economic governance as an effective determinant of foreign aid as a means to engendering the growth of the Nigerian economy. The study used the coefficient of determination in order to ascertain the effectiveness level of official development assistance (ODA) to the series (economic governance proxies) and the results of the analysis revealed mixed outcomes. While official development assistance (ODA) was found to be effective for variables such as interest rate and exchange rate and interest, its ability in engendering the growth of the economy and eradicating poverty at large from the Nigerian economic space. Hansen and Tarp (2001) carried out an investigation on the effect of foreign aid on economic growth and showed that the disaggregated measures of foreign aid in forms of public recurrent spending and development spending, other parameters such as total debt service, export growth and net national savings. The study showed that total debt service and foreign aid exhibited a negative influence on gross domestic product (GDP) growth of the economy of Tanzania. On the other hand, net national savings and export growth have revealed a positive influence on gross domestic product (GDP) growth. The study recommended that the nation should increase its capacity to invest. Fasanya and Onokaya (2012) analyzed foreign aid and its effect on the growth of the Nigerian economy. Their findings showed that the growth of the Nigerian economy was significantly impacted by the inflow of foreign aids; however, population growth had no significant effect on aid flows. Therefore, governments should devise strategies on how to manage these funds effectively and efficiently. Feeny and McGillivray (2009) investigated the impact of foreign aid on economic growth in Papua New Guinea, using the autoregressive distributed lag (ARDL) approach to co-integration. Islam (2011) suggests that foreign aid provides funds to recipient countries on development and economic growth. Foreign aid may bring about a reduction in domestic savings, but wide-ranging appraisals on single recipient nations have proved to be different. Foreign aid can affect, either negatively or positively, the spending level and economic development of the recipient countries.

Some scholars argue that aid has no significant influence on economic growth rates or increase human development indices. Some, however, feel it does, when the receiving country puts up enabling policies (Luetkepohl, 2011). This was further echoed in studies by Kolawole (2013), Ejigu (2015), Adigwe, Ezeagba and Udeh (2015), Tang and Bundhoo (2017), and others in their separate study revealed that foreign aid has a relationship with economic growth. Given that Nigeria as a country has benefited quite a lot from foreign aid, the study deemed it necessary to disaggregate foreign aid and corruption using autoregressive distribution lag (ARDL) test to see its impact on economic growth and development. The study felt the introduction of corruption as a moderating variable was a departure from the norm and would enable the researcher to access the actual impact of foreign aid on the economic growth and development of Nigeria.

3. Method

The ex-post facto research design was employed in this study with data sourced secondarily from the Central Bank of Nigeria (CBN) Statistical Bulletin and International financial statistics (IFS), on annual basis from 1990 to 2019. The model put forward to examine the relationship between foreign aids and (economic growth rate and human development index) the study variables had the following proxies given the moderating effect of corruption:

$$\text{GDPgr} = f(\text{PRA}, \text{PROGA}, \text{HUA}, \text{CRPT}) \quad (1)$$

$$\text{HDI} = f(\text{PRA}, \text{PROGA}, \text{HUA}, \text{CRPT}) \quad (2)$$

ARDL estimation using gross domestic product growth rate as a dependent variable

$$\begin{aligned}
 \Delta GDPgr_t &= \alpha_0 + \sum_{k=1}^n \alpha_1 \Delta GDPgr_{t-1} + \sum_{k=1}^n \alpha_2 \Delta LogPRA_{t-1} + \sum_{k=1}^n \alpha_3 \Delta LogPROGA_{t-1} \\
 &+ \sum_{k=1}^n \alpha_4 \Delta LogHUA_{t-1} + \sum_{k=1}^n \alpha_5 \Delta CRPT_{t-1} + \beta_1 GDPgr_{t-k} + \beta_2 LogPRA_{t-k} \\
 &+ \beta_3 LogPROGA_{t-k} + \beta_4 LogHUA_{t-k} + \beta_5 CRPT_{t-k} + e_t \\
 \Delta LogPRA_t &= \alpha_0 + \sum_{k=1}^n \alpha_1 \Delta GDPgr_{t-1} + \sum_{k=1}^n \alpha_2 \Delta LogPRA_{t-1} + \sum_{k=1}^n \alpha_3 \Delta LogPROGA_{t-1} \\
 &+ \sum_{k=1}^n \alpha_4 \Delta LogHUA_{t-1} + \sum_{k=1}^n \alpha_5 \Delta CRPT_{t-1} + \beta_1 GDPgr_{t-k} + \beta_2 LogPRA_{t-k} \\
 &+ \beta_3 LogPROGA_{t-k} + \beta_4 LogHUA_{t-k} + \beta_5 CRPT_{t-k} + e_t \\
 \Delta LogPROGA_t &= \alpha_0 + \sum_{k=1}^n \alpha_1 \Delta GDPgr_{t-1} + \sum_{k=1}^n \alpha_2 \Delta LogPRA_{t-1} + \sum_{k=1}^n \alpha_3 \Delta LogPROGA_{t-1} \\
 &+ \sum_{k=1}^n \alpha_4 \Delta LogHUA_{t-1} + \sum_{k=1}^n \alpha_5 \Delta CRPT_{t-1} + \beta_1 GDPgr_{t-k} + \beta_2 LogPRA_{t-k} \\
 &+ \beta_3 LogPROGA_{t-k} + \beta_4 LogHUA_{t-k} + \beta_5 CRPT_{t-k} + e_t \\
 \Delta LogHUA_t &= \alpha_0 + \sum_{k=1}^n \alpha_1 \Delta GDPgr_{t-1} + \sum_{k=1}^n \alpha_2 \Delta LogPRA_{t-1} + \sum_{k=1}^n \alpha_3 \Delta LogPROGA_{t-1} \\
 &+ \sum_{k=1}^n \alpha_4 \Delta LogHUA_{t-1} + \sum_{k=1}^n \alpha_5 \Delta CRPT_{t-1} + \beta_1 GDPgr_{t-k} + \beta_2 LogPRA_{t-k} \\
 &+ \beta_3 LogPROGA_{t-k} + \beta_4 LogHUA_{t-k} + \beta_5 CRPT_{t-k} + e_t
 \end{aligned} \tag{3}$$

ARDL estimation using human development index as a dependent variable

$$\begin{aligned}
 \Delta LogHDI_t &= \alpha_0 + \sum_{k=1}^n \alpha_1 \Delta LogHDI_{t-1} + \sum_{k=1}^n \alpha_2 \Delta LogPRA_{t-1} + \sum_{k=1}^n \alpha_3 \Delta LogPROGA_{t-1} \\
 &+ \sum_{k=1}^n \alpha_4 \Delta LogHUA_{t-1} + \sum_{k=1}^n \alpha_5 \Delta CRPT_{t-1} + \beta_1 \Delta LogHDI_{t-k} + \beta_2 LogPRA_{t-k} \\
 &+ \beta_3 LogPROGA_{t-k} + \beta_4 LogHUA_{t-k} + \beta_5 CRPT_{t-k} + e_t
 \end{aligned}$$

$$\begin{aligned}
\Delta \text{LogPRA}_t &= \alpha_0 + \sum_{k=1}^n \alpha_1 \Delta \text{LogHDI}_{t-1} + \sum_{k=1}^n \alpha_2 \Delta \text{LogPRA}_{t-1} + \sum_{k=1}^n \alpha_3 \Delta \text{LogPROGA}_{t-1} \\
&+ \sum_{k=1}^n \alpha_4 \Delta \text{LogHUA}_{t-1} + \sum_{k=1}^n \alpha_5 \Delta \text{CRPT}_{t-1} + \beta_1 \Delta \text{LogHDI}_{t-k} + \beta_2 \text{LogPRA}_{t-k} \\
&+ \beta_3 \text{LogPROGA}_{t-k} + \beta_4 \text{LogHUA}_{t-k} + \beta_5 \text{CRPT}_{t-k} + e_t \\
\Delta \text{LogPROGA}_t &= \alpha_0 + \sum_{k=1}^n \alpha_1 \Delta \text{LogHDI}_{t-1} + \sum_{k=1}^n \alpha_2 \Delta \text{LogPRA}_{t-1} + \sum_{k=1}^n \alpha_3 \Delta \text{LogPROGA}_{t-1} \\
&+ \sum_{k=1}^n \alpha_4 \Delta \text{LogHUA}_{t-1} + \sum_{k=1}^n \alpha_5 \Delta \text{CRPT}_{t-1} + \beta_1 \Delta \text{LogHDI}_{t-k} + \beta_2 \text{LogPRA}_{t-k} \\
&+ \beta_3 \text{LogPROGA}_{t-k} + \beta_4 \text{LogHUA}_{t-k} + \beta_5 \text{CRPT}_{t-k} + e_t \\
\Delta \text{LogHUA}_t &= \alpha_0 + \sum_{k=1}^n \alpha_1 \Delta \text{LogHDI}_{t-1} + \sum_{k=1}^n \alpha_2 \Delta \text{LogPRA}_{t-1} + \sum_{k=1}^n \alpha_3 \Delta \text{LogPROGA}_{t-1} \\
&+ \sum_{k=1}^n \alpha_4 \Delta \text{LogHUA}_{t-1} + \sum_{k=1}^n \alpha_5 \Delta \text{CRPT}_{t-1} + \beta_1 \Delta \text{LogHDI}_{t-k} + \beta_2 \text{LogPRA}_{t-k} \\
&+ \beta_3 \text{LogPROGA}_{t-k} + \beta_4 \text{LogHUA}_{t-k} + \beta_5 \text{CRPT}_{t-k} + e_t
\end{aligned} \tag{4}$$

Where GDPgr- Gross domestic product growth rate, HDI – human development index, PRA- project aid, PROGA- programme aid, HUA- humanitarian aid, CRPT – corruption perception index, a0-constant parameter, b1,b2, b3-coefficient, et-error term. This study employed the following techniques include unit root test and autoregressive distributed lag (ARDL). The estimation technique adopted for this study was the autoregressive distributed lag (ARDL) test in order to establish the short run as well as the long run dynamics of the relationship between foreign aids and the growth rate of the Nigerian economy and human development index given that the series are mutually co-integrated or purely in order I(0) or I(1).

4. Results and Discussions

The result in table 1 revealed that the growth rate of the Nigerian economy (GDPgr) had a mean value of 4.55, a standard deviation of 3.97, ranging from -2.04 in 1993 to 15.33 in 2002 as the minimum and maximum values. The human development index (HDI) had its average value as 0.42, with a standard deviation of 0.11 with a range from 0.17 in 1990 and 0.59 in 2019. Humanitarian aids (HUA) revealed 0.21 in 1999 as it lowest value and a maximum of 12.85 in 2006 with an average value and a standard deviation of 1.91 and 2.83, respectively. The analysis further revealed that project aids (PRA) had its lowest value as 2.65 in 2010/2011 and the highest value as 104.32 in 2005. Its average value was 12.49, while the standard deviation was 23.88. The programme aids (PROGA) had its average value as 1.67, with a standard deviation of 2.30 with a range from 0.15 in 1999 and 11.43 in 2006. Lastly, the corruption perception index (CRPT) had an average value of 21.26, standard deviation of 5.29, ranging from 10.00 in 2001 to 28.00 in 2016 as the minimum and maximum values.

Table 1. Descriptive statistics analysis of the variables

	GDPGR	HCD	HUA	PRA	PROGA	CRPT
Mean	4.555667	0.422467	1.911833	12.49400	1.674367	21.26667
Median	4.825000	0.464500	1.019500	6.300000	0.935500	22.00000
Maximum	15.33000	0.599000	12.85200	104.3200	11.43100	28.00000
Minimum	-2.040000	0.177000	0.219000	2.650000	0.151000	10.00000
Std. Dev.	3.978463	0.118103	2.613266	23.88764	2.309864	5.297581
Skewness	0.432997	-0.753499	2.836808	3.411108	2.834797	-0.432092
Kurtosis	3.328055	2.427856	11.80310	12.87784	12.06848	1.920639
Jarque-Bera	1.071955	3.247988	137.1057	180.1428	142.9770	2.389791
Probability	0.585097	0.197110	0.000000	0.000000	0.000000	0.302736
Sum	136.6700	12.67400	57.35500	374.8200	50.23100	638.0000
Sum Sq. Dev.	459.0169	0.404499	198.0457	16547.96	154.7287	813.8667
Observations	30	30	30	30	30	30

Table 2 below shows regression for the purpose of clarifying the result for the ADF test class of unit root test. It was found that only GDPgr and HDI exhibited no unit root process at various critical levels mostly at five per cent level of significance and was found to be stationary at levels. In other words, variables such as CRPT, PRA, PROGA and HUA were found to be non-stationary at their levels, at such, their null hypotheses of the presence of unit root cannot be rejected. However, these variables (CRPT, PRA, PROGA and HUA) became stationary at their first differences, hence; their null hypotheses can be rejected.

Table 2. Augmented Dickey-Fuller Unit Root Result excerpts

Variable	At Levels		At first difference		Order of integration
	Statistics	p-value	Statistics	p-value	
GDPgr	-3.4644	0.0166	-	-	I(0)
HDI	-4.3949	0.0017	-	-	I(0)
HUA	-0.8578	0.7858	-5.5608	0.0001	I(1)
PRA	-2.5361	0.1189	-49610	0.0005	I(1)
PROGA	-0.9031	0.7716	-5.1804	0.0003	I(1)
CRPT	-1.4825	0.5281	-5.5573	0.0001	I(1)

In order to test for the joint significance of the series in the model, the Wald test (bound test) was performed by imposing restrictions on the long-run parameters of foreign aid variables (PRA, PROGA, HUA) and the growth rate of the Nigerian economy (GDPgr) and human development index (HDI) respectively. From Table 3, ARDL Wald test upper and lower bound is selected based on five per cent significance level. However, this study is based on the conventional five per cent significance level, hence, foreign aid variables (PRA, PROGA, HUA) given the moderating effect of corruption are found to be jointly co-integrated GDPgr and HDI respectively, as such, a stable long-run relationship exist.

This conclusion was predicated on the fact that the value of Wald test calculated (F-statistics) of 6.44 for GDPgr and 18.39 for HDI were seen to be greater than corresponding the ARDL lower (2.56) and upper (3.49) F-bound (Wald test) values. The value revealed that there exist a long-run stable co-integration between foreign aids variables (PRA, PROGA, HUA) and the growth rate of the Nigerian economy (GDPgr) and human development index (HDI) given the moderating effect of corruption.

Table 3. ARDL F-Bound Test excerpts

Test statistics	GDP growth rate				Human development index			
	Value	Significance	I(0)	I(1)	Value	Significance	I(0)	I(1)
F-statistic	6.445749	10%	2.2	3.09	18.39427	10%	2.2	3.09
K	4				4			
		5%	2.56	3.49		5%	2.56	3.49
		2.5%	2.88	3.87		2.5%	2.88	3.87
		1%	3.29	4.37		1%	3.29	4.37

Based on the ARDL bound test result, the ARDL long run estimates in Table 4 showed that the independent variables (PRA, PROGA, HUA) as moderated by corruption have a joint significant negative influence on the Nigerian economic growth rate in the long run, while human development index was positively influenced in the long run. By implication, an increase in these variables will result in a significant negative effect with changes in the growth rate of the Nigerian economy, while an increase in foreign aid variables had an insignificant positive with changes in human development index in the long run given the moderating effect. All things being equal, the growth rate of the Nigerian economy will decrease by 38.10% and human development index will increase by 0.46% as a result of increase in foreign aids variables (PRA, PROGA, HUA) as a result of endemic corruption in the long run, *ceteris paribus*.

However, in the long run, PRA will have an insignificant positive effect on the growth rate of the Nigerian economy and an insignificant negative effect on human development index all things being equal given the moderating effect of corruption. The relationship between PROGA and the growth rate of the Nigerian economy was found to be negative and insignificant but positive and insignificant with human development index on the other hand in the long run given the moderating effect of corruption. Lastly, HUA had an insignificant positive effect on the growth rate of the Nigerian economy but on the other hand, negative and insignificant with human development index in the long run given the moderating effect of corruption.

Table 4. ARDL long run estimates

GDP growth rate			Human development index		
Variable	Coefficient	p-value	Variable	Coefficient	p-value
C	-38.10	0.0006	C	0.46	0.7061
HUA	5.18	0.4390	HUA	-0.21	0.8128
PRA	0.32	0.6066	PRA	-0.05	0.6092
PROGA	-6.20	0.3115	PROGA	0.26	0.7638

The ARDL short-run estimates shown in Table 5 revealed that the value of the intercept which is 35.79 for GDPgr and -0.04 for HDI. Empirically, the ARDL estimates revealed that the growth rate of the Nigerian economy will experience 35.79 percent increase; while human development index will experience a 0.04 percent decrease when all other variables are held constant. The analysis further revealed that the R² (R-squared) which measures the overall goodness of fit of the entire ARDL estimated equations. This is represented with the R² value of 0.7454 (74.54%) for GDPgr while HDI had a value of 0.9931, approximately 99%. This indicates that the independent variables (PRA, PROGA, HUA) accounted for about 75% and 99% variation in the independent variables (GDPgr and HDI) respectively given the moderating role of corruption. In the same vein, the value of F-statistics of 5.85 for GDPgr and 435.72 for HDI respectively showed that the overall model in the various estimated equations is statistically significant. The overall significance of the ARDL short-run model implies the joint significance of all explanatory variables in explaining the short-run changes in the growth rate of the Nigerian economy and human development index as the case may be.

Further examination of the ARDL short-run estimates revealed that changes in the current period of PROGA had an insignificant positive effect on the growth rate of the Nigerian economy, while the current period changes of PROGA

had a significant negative effect on human development index given the moderating effect of corruption. The implication is that, a percentage increase in PROGA will increase the growth rate of the Nigerian economy but decrease human development index accordingly in the short run all things being equal.

On the other hand, the previous lagged period of PROGA was found to have a significant negative impact on the growth rate of the Nigerian economy; while having a significant positive effect on human development index on the other hand in the short run. The ARDL results further revealed that changes in the current period of PRA had a significant negative effect on the growth rate of the Nigerian economy but had an insignificant positive effect on human development index in the short run. The implication is that, a percentage increase in PRA will decrease the growth rate of the Nigerian economy, while increasing human development index on the other hand accordingly, in the short run all things being equal.

Furthermore, changes in the previous lagged period and the previous two lagged periods of PRA were found to have positive effect on the growth rate of the Nigerian economy in the short. Lastly, the analysis revealed that changes in current period of HUA had an insignificant effect on the growth rate of the Nigerian economy, but on the other hand, same changes had a significant positive effect on human development index in the short run as the case may be. However, the previous lagged period of HUA had a significant negative effect on human development index in the short-run. The implication is that, a percentage increase in HUA will decrease human development index in Nigeria in the short-run, all things being equal.

The ECT coefficient shows how quickly variables converge to equilibrium in the short run, and should have a statistically significant coefficient with a negative sign. It is theoretically expected that ECT values would be negative and statistically significant as prerequisite for a stable and significant long run association between the dependent and independent variables. The ECT value of -0.9391 (p-value = 0.0000) for GDPgr and -0.0892 (p-value = 0.0000) in Table 5 revealed that the relationship between foreign aids as moderated by corruption; and the growth rate of the Nigerian economy and human development index respectively in the long run were stable and significant, thereby, revealing that the long run deviation in GDPgr and HDI were deemed corrected by 93.91% and 8.92% respectively by the following year all things being equal.

Table 5. ARDL short run estimates

GDP growth rate			Human development index		
Variable	Coefficient	P-value	Variable	Coefficient	P-value
C	35.79	0.0023	C	-0.04	0.6874
LHUA	-4.87	0.4479	LHUA	0.38	0.0001
LPRA	-5.04	0.0091	LHUA(-1)	-0.36	0.0007
LPRA(-1)	3.19	0.0574	LPRA	0.01	0.5764
LPRA(-2)	1.53	0.1113	LPROGA	-0.39	0.0001
LPROGA	10.79	0.0771	LPROGA(-1)	0.36	0.0006
LPROGA(-1)	-4.96	0.0204	-	-	-
R ²	0.7454	-	-	0.9931	-
F-Statistics	5.85	0.0007	-	435.72	0.0000
ECT(-1)	-0.9931	0.0000	-	-0.0892	0.0000

The ARDL equations were further subjected to a stability test using the CUSUM stability test approach. From the CUSUM test estimates, the centred blue lines in both Figure 1 and Figure 2 for GDPgr and HDI respectively were found to lie in-between the two slanted red lines. By implication, the estimates of the ARDL equations are reliable and stable.

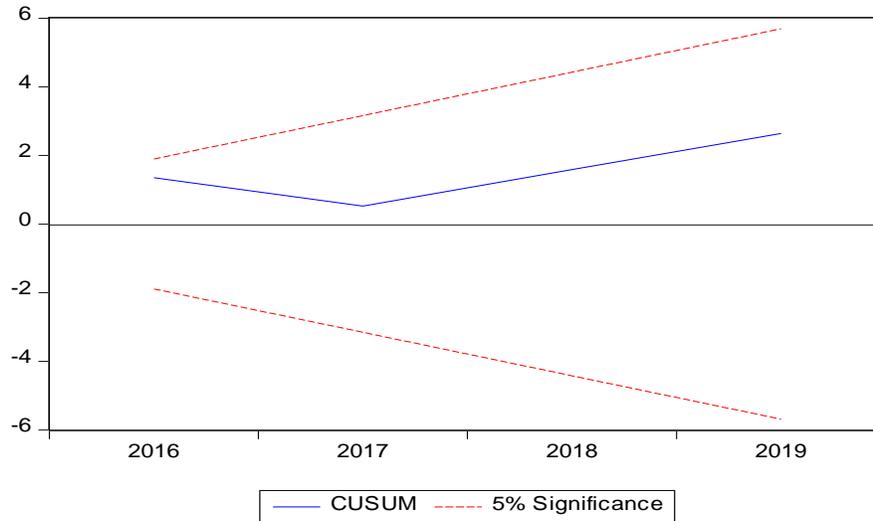


Figure 1. Stability test of the GDPgr equation

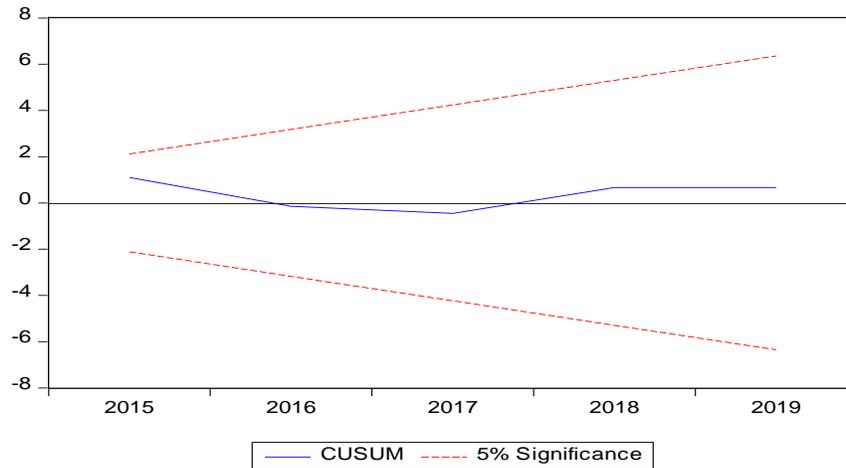


Figure 2. Stability test of the HDI equation

5. Conclusion

The objective of the study was to examine the moderating effect of endemic corruption on foreign aid and the growth rate of the Nigerian economy and human development index. The study specifically decomposes the components of foreign aid to see how it affects the economic growth rate and human development index in Nigeria. It is revealed that in the long run, given the corruption index, foreign aids will have a significant negative impact on the growth rate of the Nigerian economy; while on the other hand, an insignificant positive impact will be on the human development index in Nigeria.

Specifically, project aid and humanitarian aid have a positive but insignificant relationship with the economic growth rate in the long run, while a negative and insignificant relationship existed between project aid and humanitarian aid and human development index in Nigeria. Programme aid on the other hand had an insignificant negative on economic growth rate in Nigeria, but an insignificant positive effect on the human development index in Nigeria in the long run as the case may be. The overall short-run estimates revealed that changes in foreign aid proxies in the face of endemic corruption as a moderating variable had a significant positive effect on the growth rate of the Nigerian economy, while on the other hand, the same changes insignificantly impacted negatively on human development index in Nigeria. Foreign aid though meant for developmental projects may not be judiciously utilized in Nigeria because only humanitarian aid showed a positive and significant in the short run.

The findings of the study are clear indications that most of the foreign aids received may have enhanced human

development index in the long run, however, the expectations that these aids would stimulate a sustainable economic growth rate remain a mere wish in the country. More specifically, the negative effect of foreign aids in form of programme aids, and project aids and humanitarian aids could be attributed to either inappropriate channeling of aid funds to useless or unproductive projects, deliberate diversion of aid funds or the endemic corruption in the system, thereby, negatively impacting on the growth rate of the economy in the long run and human development index in the short run respectively.

The study concluded that foreign aid if properly harnessed should build capacity and enhance economic growth rate and human development index but this was not seen from this study. It is therefore essential that Nigeria ensures that when these foreign aids are received, they are properly channeled into the targeted sectors like agriculture, health, education, and other productive areas so as to have the desired impact on the growth rate of the Nigerian economy and human development index. Lastly, contrary to the known importance of foreign aids to the recipient countries globally, the UNDP ranking of Nigeria is an indication that the total volume of aids has no significant impact on the human development index due largely to corruption among others.

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