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Foreign Aids and Sustainable Growth in Africa: Evidence from Nigeria

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Abstract

This study analyzes the foreign aids and sustainable growth in Africa using Nigeria as a point of reference. The study employs annual data sourced from the World Development Indicators (WDI) 2017 spanning from 1970 to 2017 in determining the effects of foreign aid on sustainable growth in Africa while adopting quantile regression model after testing for the stationarity tests using both the Augmented Dickey-Fuller (ADF) and Phillips–Perron (PP) tests. The estimation result from the quantile regression shows that external debt (EXD) and official development assistance (ODA) have a negative and statistically significant effect of sustainable growth in Africa. Foreign direct investment (FDI) also has a positive influence on sustainable growth but with a significant insufficient result. Equally, the estimation result only shows that technical cooperation grants (TCG) are the only variable with a positive influence and statistically significant result on sustainable growth in Africa. Based on these findings, African leaders should put more efforts in proper utilization of the technical cooperation grant to further engender growth and its sustainability in the economies of Africa.

1. Introduction

The significance of foreign aids and their developmental relevance to the emerging economies especially in Africa have remained one of the most debated topics among scholars and researchers across the globe. Many studies are of the opinion that even though economies in Africa have attracted a significant level of foreign aid with no commensurable measure in terms of sustainable growth and development.

As many studies argued, foreign aids impact passivity on growth and sustainable development, Prokopijevic (2007) posits that foreign aids are not only ineffective but counterproductive given the fact that the objectives at which the aids were made are not properly channelled. According to Development Assistance Committee (DAC) of Organization for Economic Cooperation and Development (OECD), foreign aid is financial flows, technical assistance and commodities that are premeditated to enhance the welfare and economic development of the core objective(s) of the aid, which can come either as subsidized loans or grants.

However, foreign aid is basically the financial and non-financial assistance given to developing countries by developed economies for specific purposes such as poverty reduction, pain relief, development, and so on. Foreign aid can be seen as a foreign direct investment (FDI), official development assistance (ODA), and external debts targeted towards improving the economic situation in which the aids were made.

According to the 2017 World Investment Report (WIR) of the United Nations Conference on Trade and Development (UNCTAD), Africa has been the major beneficiary of foreign aid in terms of foreign direct investment (FDI) vis-à-vis other continents. In 2015, the most prominent benefactors of this aid to Africa are United States, United Kingdom, France, and China among others.
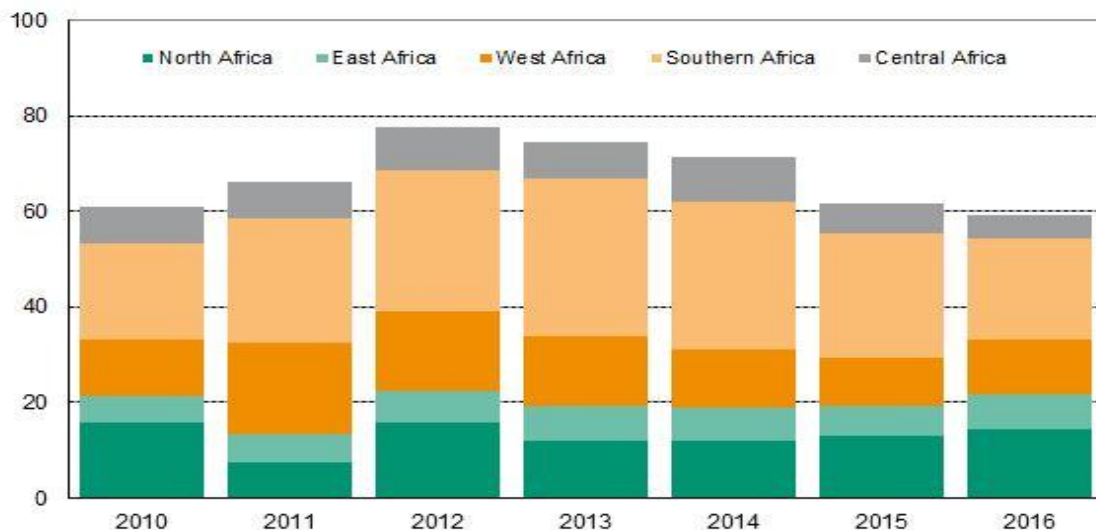
Figure-1. Foreign direct investment in Africa in between 2010 and 2016.
Source: World Investment Report (WIR) (2017).

Figure 1 shows the foreign direct investment to African continent within the range of 2010 and 2016. In the multiple bar chart, the share of the foreign direct investment to Southern Africa is relatively larger in comparison with other regions in Africa over the years, and this is followed by West Africa, North Africa, Central Africa and East Africa.

More specifically, the economy of Nigeria in Africa has been one of the regular beneficiaries of foreign aids since its independence (World Development Indicators (WDI), 2017). The figure below shows the trend of net official development assistance to Nigeria from 1960 to 2017.
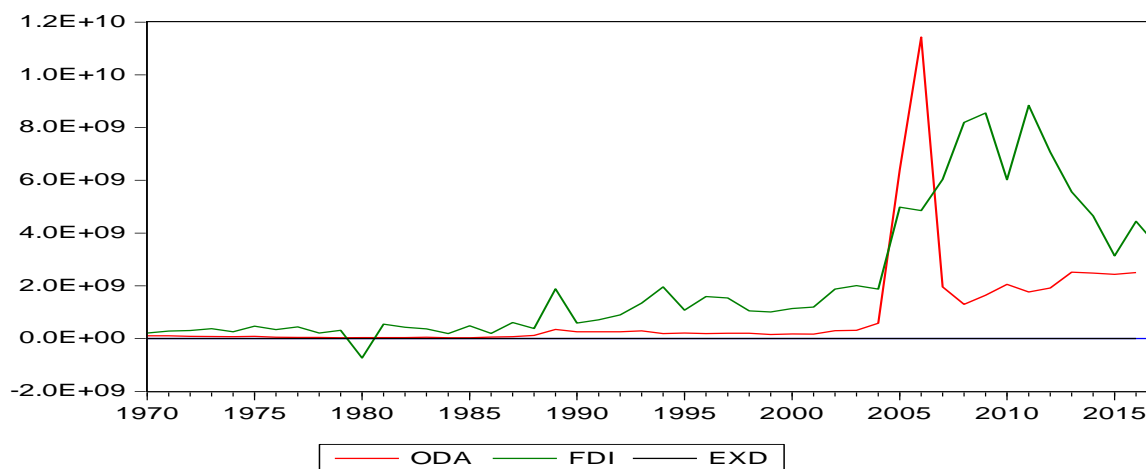

Figure-2. Net official development assistance received from 1960 to 2017.
Source: World Development Indicators (WDI), 2017.

Figure 2 shows the trend of official development assistance (ODA) made to the economy of Nigeria over the years. The assistance has been on increasing rate since 1960 up to 2005, and 2006 when it sky-rocked before declining in 2007. The ODA continued increasing from 2008 and above up till 2017. On the other hand, FDI has been growing since Nigeria's independence from 1960 until 1980 when it assumed negative of about – 7.39 billion USD and continued rising on positive figures in more recent years.

However, the motivation behind this study is born out of the quest to really ascertain the position and significance of foreign aids to Africa continent using data from world development indicators (WDI). The objective of this study is to determine the effects of foreign aids on the sustainable growth and development of Africa as a continent while employing the Nigeria data.

2. Review of Related Literature

There exist tremendous literature in the area of foreign aids and economic or sustainable growth which are spread across countries and continents. Most of the studies have the less developed economies as the recipients of such – for instance, the study carried out by Armah and Nelson (2008) utilized panel data from twenty-one countries in Sub-Saharan Africa spanning from 1995 to 2003 in determining the benefit of foreign

aid to the economies of the selected countries in Africa using fixed effects. The study highlighted that foreign aids promote economic growth and sustainability in the presence of good governance.

Just as Mustafa, Elshakh, and Ebaidalla (2018) studied the relationship between foreign aid and economic growth in Sudan using time series data ranging from 1980 to 2015 while employing autoregressive distrusted lag (ARDL) bounds tests for co-integration. The result revealed that foreign aid impact positively on the economic growth in the short run in Sudan, but negative with corruption in public institutions in the long run. On a general note, the study concluded that foreign aid can enhance sustainable growth if channelled toward enhancing human capital development in Sudan.

Rena (2013) employed descriptive statistics to analyze the effect of foreign aid in developing countries using the Namibian economy as a point of reference. The study pointed out that though Namibian has experienced tremendous growth since independence, it still depends significantly on the foreign aid. The study showed that foreign aid is relatively effective in assisting the Namibian economy actualizing country's development agenda and goals. This finding is similar to that of Andrews (2009) who engaged the deductive approach in ascertaining the nexus between foreign aid and development in Africa. The study concluded that foreign aid impacts positively on the development of Africa if socio-cultural factors are taken into account.

Burnside and Dollar (2000) studied the causal nexus amongst foreign aid, economic policy, and growth of per capita income using data from World Bank development indicators of developing countries. The result shows a significant positive impact of foreign aid on the economic growth in the presence of excellent monetary, fascial and trade policies, with no significance on poor policies. However, a similar result is perceived from the work of Durbarry, Gemmel, and Greenaway (1998) who utilized an augmented model of the Fischer-Easterly type in studying the impact of foreign aid on economic growth in developing countries. The result is of opinion that foreign aid has a significantly positive impact on economic growth in developing countries in the presence of stable macroeconomic and environmental policy. However, a similar result is perceived from the work of Durbarry et al. (1998) who utilized an augmented model of the Fischer-Easterly type in studying the impact of foreign aid on economic growth in developing countries. The result is of opinion that foreign aid has a significantly positive impact on economic growth in developing countries in the presence of stable macroeconomic and environmental policy.

Liew, Mohamed, and Mzee (2012) analyzed the impact of foreign aid on economic growth of East African countries using panel data ranging from 1985 to 2010 with pooled ordinary least square (OLS) technique after testing for the random and fixed effects. The study unlike (Durbarry et al., 1998) found a significant negative effect of foreign aid on the economic growth of East African countries, and thus recommended further probes into the leakages in the channels of the aids with possible correction measures to positively and effectively drive up the growth. In Bangladesh, Marshal (2013) inquired into the sustainability of growth through financial aid using the United Nations Conference on Trade and Development (UNCTD) data ranging from 1971 to 2009. The estimated result from the static linear regression with the ordinary least square (OLS) technique pointed out that Net Financial Development Assistance has no significant impact on the economic growth and development in the Bangladesh economy.

Fiodendji and Evlo (2013) employed modified panel threshold model in studying the role of institutional quality and macroeconomic policy management of foreign aid-economic growth relationship in 13 ECOWAS countries from 1984 to 2010. The result revealed a strong non-linear relationship with the unique threshold between aid and economic growth. The study also found a stable macroeconomic environment and better institutional quality as a prerequisite for the effectiveness of aid to sustainable economic growth in the 13 ECOWAS economies.

3. Methodology

The methodological framework of this study is drawn from the Quantile Regression Model. Although quantile regression is most often used to model specific conditional quantiles of the response, its full potential lies in modelling the entire conditional distribution. By comparison, standard least squares regression models only the conditional mean of the response and is computationally less expensive. Quantile regression does not assume a particular parametric distribution for the response, nor does it assume a constant variance for the response, unlike least squares regression (Baltagi, 2008).

However, the quantile regression model will be conducted on time series data sourced for the world development indicators (WDI) ranging from 1970 to 2017 (about 47 years sample size). On that note, the study objective of the effects of foreign aid on sustainable growth in Africa can be captured with the following mathematical expression:

$$GDP = f(EXD, FDI, TCG, ODA, OER) \tag{1}$$

The Equation 1 simply states that gross domestic product (GDP) (proxy of sustainable growth) is a function of external debt (EXD), foreign direct investment (FDI), technical cooperation grant (TCG), net official development assistance (ODA) and official exchange rate (OER).

The econometric expression of the mathematical Equation 1 is as follows:

$$GDP_t = \beta_0 + \beta_1 EXD_t + \beta_2 FDI_t + \beta_3 TCG_t + \beta_4 ODA_t + \beta_5 OER + \mu_t \tag{2}$$

Where: β_0, β_1, β_2, β_3, β_4, β_5 measure parameters, while μ_t is stochastic error term.

4. Result and Discussions

Table-1. Descriptive statistics.

Statistical properties	TCG	OER	ODA	GDP	EXD	FDI
Mean	1.22E+08	58.72013	9.28E+08	1.11E+11	54.80280	2.12E+09
Median	77390000	21.88443	1.90E+08	3.60E+10	23.82957	1.05E+09
Maximum	3.77E+08	253.4920	1.14E+10	5.68E+11	228.3717	8.84E+09
Minimum	29570000	0.546781	25740000	9.18E+09	3.771340	-7.39E+08
Std. dev.	1.07E+08	70.65111	1.96E+09	1.55E+11	57.96591	2.54E+09
Skewness	1.156389	0.820485	3.879369	1.813348	1.119969	1.358935
Kurtosis	2.940927	2.385447	19.82513	4.822155	3.624137	3.634409
Observations	47	47	47	47	47	47

As the title implies, Table 1 presents the descriptive information on the mean, median, maximum, standard deviation, skewness, kurtosis and observations (with their respective values in billions of US dollars) on the individual variables in the empirical model see Equation 1 and Equation 2. The number of observations which are 47 parallel stands for the years of the sample size of the variables ranging from 1970 to 2017.

Table-2. Results of the stationarity (Unit Root) tests.

	Augmented Dickey-Fuller (ADF) test for unit root				Phillips–Perron (PP) test for unit root			
Variables	At level	At 1st diff.	At 2nd diff.	Order of integration	At level	At 1st diff.	At 2nd diff.	Order of integration
GDP	-0.14 (-2.93)	-5.53** (-2.93)	--	I(1)	-0.46 (-2.93)	-5.58** (-2.93)	--	I(1)
EXD	-1.49 (-2.93)	-6.44** (-2.93)	--	I(1)	-1.47 (-2.93)	-6.44** (-2.60)	--	I(1)
FDI	-1.48 (-2.93)	-8.70** (-2.93)	--	I(1)	-1.50 (-2.93)	-8.48** (-2.93)	--	I(1)
TCG	-0.67 (-2.93)	-9.73** (-2.93)	--	I(1)	-0.30 (-2.93)	-9.32** (-2.93)	--	I(1)
ODA	-3.43** (-2.93)	--	--	I(0)	-3.34** (-2.93)	--	--	I(0)
OER	-3.06** (-2.93)	--	--	I(0)	-2.56 (-2.93)	-3.57** (-2.93)	--	I(1)

Note: *Significant at 1%, **Significant at 5%, ***Significant at 10%.

Table 2 presents the results of the stationary/unit root tests using both the Augmented Dickey-Fuller (ADF) and Phillips–Perron (PP) tests. The choice of adopting both tests concurrently is to ensure certainty in confirming the stationarity of the variables for in the model and for policy analyses/purposes. In Augmented Dickey-Fuller (ADF) test, gross domestic product (GDP), external debt (EXD), foreign direct investment (FDI), and technical cooperation grant (TCG) are all stationary at first difference I(1), while net official development assistant (ODA) and official exchange rate (OER) are stationary at level I(0). On the other hand, all the Phillips–Perron (PP) tests on the variables conform to the ADF test results except on the official exchange rate (OER) which is stationary at first difference. Furthermore, haven tested for the stationarity of the variable with the confirmation of no unit root on the all the variable in the model, the study shall proceed with the estimation of the model using quantile regression model as stated above.

The above Table 3 presents the estimation result or regression output from the quantile regression model. The external debt (EXD) has a negative and statistically significant effect on the sustainable growth in Africa. This means that the quantum of external debt in Africa negatively influences the sustainability of sustainable growth in Africa. This could be as a result of the quantum of funds that goes out of African economy as a result of debt serving. The same result is applicable to the official exchange rate which is statistically insignificant with negative influence on the sustainable growth in Africa.

Also, the foreign direct investment (FDI) has a statistically insignificant positive effect on the sustainable growth on the economies in Africa. This means that FDI contributes positively on the sustainable growth but not strong enough to cause sustainability in terms of growth in the economies in Africa. Related to this result is the technical cooperation grant (TCG) that has positive and statistically significant effect on sustainable growth. This literally means that the only foreign aid that can contribute significantly to sustainable growth in Africa is technical cooperation grants. This grant goes a long way in transforming some primary goods or

raw-materials to semi-finished goods which is one of the numerous ways of improving the economies of developing the economy and thus engendering sustainability in terms of growth. Conversely, net official development assistance (ODA) has a negative and statistically significant effect on the sustainable growth in Africa. This could be counterproductive as a result of poor macroeconomic policy management, inefficiency utilization, and misappropriation on the side of African leaders that divert the designated objectives of this official development assistance (ODA) into their personal purse. Finally, the values of R^2 of about 0.89, and Adjusted R^2 of 0.87 show goodness of fit of the quantile regression lines.

Table-3. The estimation result/output

Variable	Coefficient	Std. error	t-statistic	Prob.
C	-2.10E+10	1.56E+10	-1.348433	0.1849
EXD	-5.56E+08	1.28E+08	-4.331953	0.0001
FDI	3.739413	10.45187	0.357774	0.7223
TCG	1910.940	272.1165	7.022508	0.0000
ODA	-33.77314	4.504797	-7.497150	0.0000
OER	-5.23E+08	3.92E+08	-1.336389	0.1888

R^2: 0.89,   Adjusted R^2: 0.87   Observations = 47.
Dependent variable: Gross Domestic Product (GDP)(a proxy for sustainable growth).

5. Conclusion and Policy Recommendations

In summary, this study has critically assessed the effects of foreign aids on the sustainable growth of Africa using Nigeria data sourced from the World Bank database. The study employed a quantile regression model the testing the core objective of the empirical research with time series data ranging from 1970 to 2017. The justification for the sample size of about 47 years was as a result of ensuring a high degree of robustness in the quantile regression result. Equally, the study employed both ADF and PP stationary tests in ascertaining the validity of the variables in policy formulation. However, the result from the quantile regression estimation output shows that only the technical cooperation grants are capable of driving the growth of Africa to sustainability. Based on the findings of the estimation result, the following policy recommendation can be deduced:

- The economies in Africa ought to pay critical attention in utilizing the technical cooperation grants due to its capability in transforming the traditional agrarian technology to more efficiently modern technology which invariably spurs growth and sustainability.

- Nonetheless, the economies in Africa should pay critical attention in curtailing the misappropriation and corruption among the leaders of thought to tame the incessant diversions of aid (in term of official development assistance) to their personal consumption.

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