# Foreign Aid and Sustainable Development in the West African Monetary Zone: Focus on Poverty Reduction and Child Mortality.

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## Abstract

The study achieved a major objective of examining the effect of financial aid (FAD) on sustainable development in the West African Monetary Zone (WAMZ) countries, a comparative analysis of the effect of FAD between two sustainable development indicators: poverty reduction and under-five child mortality. The study used Panel Autoregressive Distributed Lag (PARDL) to find the effect of Official Development Assistance (ODA) and Other Official Flows (OOF) on the GNI index (a measure of poverty reduction) on one hand and on under-five child mortality rate (MORT_RATE) on the other. The PARDL results showed no evidence of significant relationship between FAD and sustainable development in terms of poverty reduction in the short run but significantly reduced child mortality. In addition, on the long run, foreign aid significantly aided poverty reduction but had mixed effects on child mortality rate. A comparison analysis shows that in both the short and the long run, there is a marked difference between the effect of foreign aid on poverty reduction and child mortality rate. The study concludes that FAD significantly impacted on sustainable development and that the effect of foreign aid variables differs across sustainable goal areas. The study recommended that countries in the West Africa Monetary Zone can still benefit if judicious use is made of such aid flows into the countries. This will include a closer monitoring of the disbursement and spending of foreign aid towards set sustainable development goals.

**Keywords:** Foreign Aid, Sustainable Development & PARDL

## Introduction

The post-World War II events necessitated that less developing countries receive financial help from the developed ones if they were to thrive. Several meeting and conventions were held by world leaders towards achieving sustainable development in the world, particularly the developing countries and these culminated into the campaigns for financial flows in form of aid to help developing ones overcome extreme poverty, environmental degradation, child and maternal mortality, social dislocation, illiteracy among other critical challenges (United Nations, 1997).

The major action that spurred foreign aid and sustainable development efforts was the Rio Earth Summit" 1992 in Brazil (United Nations, 1992), where the need for the developed world to assist in the development of the Less Developing Countries ravaged by poverty and general underdevelopment. The summit produced a blueprint (Agenda 21) to address sustainable issues globally. According to the Agenda 21, the blueprint specifies that countries in the world should evolve new developmental processes aimed at preserving the environment, resources and nature for the convenience of resent and future generations. The summit recognized the need for huge movement of capital between developed and Less Developed Countries (LDCs) for the processes

to yield fruit hence the call for foreign aids to the LDCs. Olaniyan (1996) had stated that since the inception of Agenda 21, it has dictated the speed advancement in sustainable development among many African countries. Focus of sustainable development has been poverty eradication apart from other ancillary targets. The author observed that achieving sustainable development in Africa has been an uphill task not because foreign aids have not been coming to the continent but because of self-created constraints such as political instability, corruption and institutional deficiency. For sustainable development to be achieved, requisite institutional, legal and political frameworks must be put in place by countries benefiting from foreign aid (United Nations, 1997).

Abeselom (2018) asserted that there are controversies surrounding the need for foreign aid by Less Developing Countries. The sincerity of donor countries to help the LDCs had been subjected to constant scrutiny by scholars. Some have argued that foreign aid is a veritable diplomacy tool used by rich countries to control the poor ones. The author opined that development aid is "a myth which serves as a means of preserving the existing economic and social structures and privileges in the world." This means that many aid donors are merely safeguarding their political, economic and security interest. According to Lancaster (2008), governments of rich countries give aid to poor ones for several reasons which may include a genuine willingness to help, domestic politics, economically derivable benefits by the rich countries or other strategic reasons.

Vitenu-Sackey *et al* (2020) posited that though foreign aid promoters since the close to the end of the Second World War (WWII) aimed at fast-tracked development of developing countries, Africa, in particular, still remained undeveloped despite the flows of aid into it over the years. Poverty rate, child mortality, insecurity, low standard of living, number of children out of school, environmental degradation among several other indicators have been on the worse. Researchers and donor agencies have been interested in the reason why this phenomenon persisted for so long.

Veiderpass and Andersson in an elaborate study of 60 countries across the world between 1995 and 2000 asserted that greater attention has been put on foreign aid issues since early 2000s. The plan to achieve some stated Millennium Development Goals (MDGs) in 2015 latest spurred interest on how foreign aid affects sustainable development in developing countries. Issues such as extreme poverty, low school enrolment, gender inequality, child mortality, maternal health, the spread of pandemics and safe environment among several others have been on the main board of the MDG promoters. For aid to be beneficial however, Roodman (2004) opined that some domestic factors in terms of policies, history, governance and external circumstances must be taken into consideration.

According to Andrews (2009), "the growing gap between the developed and developing countries has dominated international relations and diplomacy for a long time. This gap has led to constant capital inflow from the developed countries to those in the world including Africa, with the goal of helping them overcome their problems and reduce the gap." The author observed that as of 2009, foreign aid had not done much to change the precarious economic and social lives of the African continent. Underdevelopment was still widespread as it was before foreign aid was introduced.

Although the effect of foreign aid should be poly-dimensional, achieving all targeted goals at the same time, the question arises as to whether some goals can be achieved while others are not, or still, whether some other development indicators are getting worse when efforts are being made to

achieve others. This is the focus of this study: an attempt to examine the effect of foreign aid on sustainable development in the West African Monetary Zone countries from two goal points: poverty reduction and child mortality.

## Literature Review

### Measuring Sustainable Development

The United Nation (UN)(2001) reported that its Commission on Sustainable Development (CSD) listed some indicators of SD during its third session in that year. These indicators, which can be further broken down into several other metrics are tabulated in Table 1.

**Table 1: Key Indicators as spelt out by the by CSD**

| Social | Environmental |
|---|---|
| Education | Freshwater/groundwater |
| Employment | Agriculture/secure food supply |
| Health/water supply/sanitation | Urban |
| Housing | Coastal Zone |
| Welfare and quality of life | Marine environment/coral reef protection |
| Cultural heritage | Fisheries |
| Poverty/Income distribution | Biodiversity/biotechnology |
| Crime | Sustainable forest management |
| Population | Air pollution and ozone depletion |
| Social and ethical values | Global climate change/sea level rise |
| Role of women | Sustainable use of natural resources |
| Access to land and resources | Sustainable tourism |
| Community structure | Restricted carrying capacity |
| Equity/social exclusion | Land use change |
| Economic | Institutional |
| Economic dependency/Indebtedness/ODA | Integrated decision-making |
| Energy | Capacity building |
| Consumption and production patterns | Science and technology |
| Waste management | Public awareness and information |
| Transportation | International conventions and cooperation |
| Mining | Governance/role of civic society |
| Economic structure and development | Institutional and legislative frameworks |
| Trade | Disaster preparedness |
| Productivity | Public participation |

**Source:** UN (2001)

According to the CSD, measuring sustainable development can be done from four broad perspectives: social, environmental, economic and institutional. These four divisions can be further decomposed to sub-themes with each having its indicators. For example, the UN (2001) defined a social SD sub-theme to include poverty, health, education among others. Each of these sub-themes

has its indicators which are also many. Of importance to our present study is the Gini index of income inequality which measures the level of poverty (reduction) in the country over a given period. Secondly, the study also considers mortality rate of under 5 children as a crucial measure of the health sub-theme of sustainable development.

**The West African Monetary Zone (WAMZ)**

Harvey and Cushing (2015) stated that the quest for a West Africa monetary union started in 1975 with an establishment, through Article 2, Section 2 of the Lagos Treaty. This Treaty established the Economic Community of West African States (ECOWAS) which was created for "harmonization, required for the proper functioning of the community, of the monetary policies of the member states." Soyibo (1998) listed some of the initiatives towards monetary unions as the West African Clearing House (WACH) in 1975, the West African Economic and Monetary Union (WAEMU) in 1994, the West African Monetary Agency (WAMA) in 1996, the ECOWAS Monetary Cooperation Programme (EMCP) was launched in 1987, and the West Africa Monetary Zone (WAMZ) in 2000 comprising a six nation states (Nigeria, Gambia, Sierra Leone, Ghana, Guinea and later Liberia). The "West African Monetary Institute" (WAMI) was established in the same year but attempt to create a "West African Central Bank and introduce a common currency did not yield fruitful result due to the failure of member countries to meet the set conditions. However, the WAMZ in 2002 set criteria for effective harmonization of sub-regional monetary and fiscal policies. The criteria include price stability by 2004, sustainable fiscalism on the part of government by 2005, reduction in deficit financing by government by 2005 and stable exchange rate between 2003 and 2005 (Nnana, 2002).

**Foreign Aid and Sustainable Development in Africa**

According to Olaniyan (1996), international aid and official development assistance (ODA) can be traced to the events after World War (WWII), where countries that were less hit by the war came in to rescue the badly hit ones. Over several decades, development assistance and foreign aid have played significant role in poverty alleviation and economic development of less developing countries in Africa and other continents. Several years after the WW2 at the "Earth Summit" in 1992, world leaders developed the agenda 21 which was targeted at facilitating the movement of huge amount of financial aids to developing countries whose economies were weak and vulnerable. The World Bank (1998) reported that ODA and foreign aid arose in the spirit of international partnership to help fellow countries in economic trouble many of which are in sub-Saharan Africa. The Bank however noted that inflows of aid to less developed countries continued to decline, having adverse effect on sustainable development and economic growth (Babalola & Shittu, 2020).

The ADB (2019) identified the declining inflow of foreign aids to Africa in spite of the hype about Agenda 21 and the need for improved economic development in the continent. Granted that the tenets of the Agenda were integrated into the economic policies of many African countries, its effect on the development of the continent has become a subject of debate. Nevertheless, national, regional and interregional organizations have continued to incorporate some aspects of the sustainable development goal targets in their plans, including environmental, institutional and human policies. Issues such as poverty alleviation, access to healthy living, population control, urbanization, food security, waste management among others have been brought to the fore in their

planning and programmes. The ADB (2019) attested to the fact that expected progress in sustainable development in the Africa continent is yet to be achieved due to the enormity of difficult faced in the implementation of designed policies and programmes. These includes problems relating to shortage of requisite skilled manpower, lack of adequate training facilities, absence of integration, information gap and paucity among others. In many instances, sustainable development is difficult to achieve because of duplicity of activities, resource wastages and lack of commitment by donor countries. Paucity of fund required to execute sustainable development projects worsens the situation.

Another factor advanced for the decline in aid flows into African countries was events in the international community such as the collapse of the Soviet Union which gave birth to many other aid seeking countries so that attention was shifted away from African countries. This is apart from the need to reduce fiscal deficit by many who previously donated huge aids. According to Babalola and Shittu (2020), donor countries usually dictate the purpose of foreign aids. The focus of these donor countries and agencies can be for strategic and political purpose, commercial and economic reasons or humanitarian purpose.

**Theoretical Underpinning**

In the literature, Easterly (2003) stated that the theoretical basis for linking foreign aid with development in a straightforward manner is challenging, although researchers normally rely on the dual gap model by Chenery and Strout (1966). This model, which takes its root from the Harrod-Domar growth model, also called the 'Two-gap' model states that foreign aid and development assistance spurs development in benefiting countries by supplementing their domestic capital. The dual gap model assumes (reliably so) that LDCs are faced with paucity of domestic savings, uncompetitive financial system and infrastructural decay. The model identifies two major gaps that impair growth and development: savings (paucity of savings for investment) and foreign exchange gaps (insufficient export earnings to finance import). To fill this gap, foreign aid becomes a necessity. Morrisey (2001) listed the channels through which foreign aid supports domestic development as (i) facilitating more investment in human and physical capital (ii) aiding the importation of technology and capital goods, and (iii) technology transfer for increased productivity.

Also, the reason for development assistance and aids for developing countries is also rooted in the donor-oriented theory (also termed international relations theory). White (1974) posited that the donor-oriented theory assumes that donors have other aims apart from economic development. These according to the theory can include political, strategic or other reasons hence the author argued for what is termed "supplemental theory of foreign aid which posits that aid is only necessary to supplement domestic savings. After the recipient country has utilized the aid and attain a level of self-sustenance, foreign aid can be discontinued. This has become unachievable for most less developing, aid benefiting countries, especially those in Africa. A generally acceptable theory of foreign aid must encapsulate the metrics of sustainable development.

The African Development Bank (ADB)(2019) stated that economic growth in the West Africa sub region differ among countries over time. Specifically, the ADB recorded that 9 of the countries' economy grew at about 5% rate in 2017 and 2018, while the economy of countries like Senegal, Guinea, Ivory Coast and Mali have had the same growth rate (5%) from 2014 to 2016.

Macroeconomic stability, inflow of foreign aid and political stability are some of the reasons adduced by the ADB for this growth. The Bank however posited that the stimulating effect of foreign aid in those countries and others is an unending debatable issue.

**Empirical Review**

Falade (2023) examined the effect of foreign aids on sustainable development in Nigeria from 1986-2021 using Augmented Dickey Fuller (ADF) unit root test, Johansen Co-integration test, Dynamic Least Squares (DOLS) and Granger Causality test. The DOLS result revealed that, foreign aid, exchange rate and trade openness were significant with each exhibiting a direct link with sustainable development. This suggests that inflow of foreign aids in different forms is essential for resource conservation. Also, inflation rate showed an inverse and significant link with sustainable development at 5%. In addition, a bi-directional causality was established between foreign aid and sustainable development. The study concluded that foreign aids in different forms, exchange rates stability and high exportation that comply with environmental

Adamu *et al* (2022) used a historical method of analysis to examine whether foreign aid has a positive or negative effect on Nigeria's economic development from 1999 to 2021. Dependency theory is used to show why the Less Developed Countries (Nigeria included) are underdeveloped to the extent that they have to rely upon aid from Industrialized Nations. The finding of the research shows that foreign aid has not contributed much in the development of Nigeria.

Ibrahim (2022) investigated the impact of foreign aid on poverty using a panel data set of 14 West African nations. Foreign aid was disaggregated according to the reason for which it was given while poverty was measured with three variables namely; poverty headcount, infant mortality, and literacy rate. Annual data was sourced from the WDI (2022), WGI (2022) and OECD (2022), scoped 2008-2020. Using a two-step system GMM, the study found that total aid insignificantly reduces poverty headcount in the presence of reduced corrupt practices. Furthermore, foreign aid allocated to health and education was found to lower infant mortality and improve literacy rates, respectively; however, these effects were only significant in the condition of reduced corrupt practices. The study thus concludes that foreign aid works better when corrupt practices are reduced.

Babalola and Shittu (2020) investigated how institutions affect the link between foreign aid and sustained economic development in 16 West African countries between 1996 and 2017. The authors used a panel data sourced from the World Bank Development Indicators and analyzed it with a panel autoregressive distributed lag (PARDL) and found that foreign aid did not significantly affect general economic development but negatively affected it when institutional variable is included in their model. This implies that institutional variable reduces the effect of foreign aid on sustained economic development in the countries studied. The authors further posited that government of West African countries should build strong economic, political and social institutions that can fast-track positive impact of foreign aid on African economy and people.

Vitenu-Sackey *et al* (2020) assessed the effect of foreign aid on Africa's development from 1996 to 2017 using a GMM and Granger causality techniques to analyze a panel data of 50 African countries. The authors discovered that foreign aid significantly impaired development in African countries instead of improving it. Having identified political instability, corruption, low human

capital development and fragmented institutional framework as hindering development in Africa, the authors recommended focusing on technical and educational assistance aimed at strengthening institutions in the continent.

Njoroge (2020) studied the comparative effect of foreign aid on the development indices in Ghana and Angola. The study mainly focused on foreign aid – development nexus in these countries and factors that hinder effective aid utilization. Factors such as inability to properly manage and coordinate aid flows, volatility of aid, donor fragmentation, inadequate counterpart funding and absence of local involvement in aid sponsored projects in the two selected countries.

Umeh (2019) however investigated how foreign aid has impacted the Nigerian economic growth. Documentary method was used to collect the data and content analysis for the estimation. The study found out that the conditionalities that come with foreign aids ended up affecting the economic growth negatively. Asongu *et al* (2018) rather looked at a panel study of 53 African countries to examine the effect of foreign aid on sustainable human development from 2005-2012 and the study came out with the findings that foreign aid improves human development in the short run but decreases it in the long run.

Literature is replete with empirical studies on the relationship between foreign aid and sustainable development generally. However, what appears scanty is the examination of such effect in more goal specific terms, especially in West Africa. Furthermore, there have been studies carried out to examine this relationship in a cross-country and continental manner. However, it is also rare to find a study carried out on this relationship based on a common monetary, currency or union. Therefore, this study bridged the identified lacuna by addressing the effect of foreign aid on sustainable development from two perspectives: poverty reduction (economic goal) and child mortality (health goal) in the six-member West Africa Monetary Zone countries including The Gambia, Ghana, Guinea, Liberia, Nigeria and Sierra Leone.

**Data, Models and Methods**

This study used a panel data of six WAMZ countries (The Gambia, Ghana, Guinea, Liberia, Nigeria and Sierra Leone) on official development assistance (ODA), other official flows (OOF), the gross national income (GNI) index, a measure of poverty rate (UN, 2001), under five years mortality rate and inflation as measures of sustainable development for the year 1992 to 2022. The year 1992 was selected as the starting year because it marked the commencement of drastic action plan that spurred foreign aid and sustainable development through the Rio Earth Summit in Brazil. The data used in this study are sourced from secondary sources, the World Bank Development Indicators and the OECD Sustainable Development Indicators for various years and countries. Data availability however limited the number of sustainable development indicators and foreign aid measures that could be used.

The models for the present study are as follows:
SSD = f(FAD)
Where SSD = sustainable development
And FAD = foreign aid
While SSD is a vector of GNI (Gross national income index) and MOT (child mortality rate)
FAD is a vector of ODA (official development assistance) and OOF (other official flows).

To examine the effect of foreign aid on sustainable development in the WAMZ from the perspective of income level (poverty alleviation) and mortality of children (child mortality), the study states the models in econometric forms as follows:

$GNI = \Theta_{it} + \mho_1 ODA_{it} + \mho_2 OOF_{it} + u_{it}$ ..... (i) for effect on income enhancement/poverty reduction and

$MOT = \Theta_{it} + \mho_1 ODA_{it} + \mho_2 OOF_{it} + u_{it}$ ..... (ii) for effect on mortality rate reduction

Where = regression intercept/constant and $\mho_1$ and $\mho_2$ are regression coefficients.

**Pre-Estimation Tests**

The variables were subjected to preliminary deterministic tests in order to ascertain the statistical properties of the variables, to determine the stationarity of the variables and to establish whether the variables have long-run co-integration relationship. Specifically, the descriptive statistics, correlations, test of unit root and co-integration test were carried out. The Fisher – Augmented Dickey Fuller test of stationarity was used to test for the presence of unit root and the Johansen's Fisher – ADF combined co-integration test for the panel co-integration. (Trace and Max-Eigen).

**Estimation Techniques**

The Panel Autoregressive Distributed lag (Panel ARDL) was used to examine the relationship between foreign aid and sustainable development from two perspectives: poverty reduction (in terms of the GNI index – a measure of economic welfare) and health (child mortality rate). This elicited two different models.

Theoretically, while ODA and OOF are expected to have direct and positive effect on GNI, they are however expected to have a negative effect on MORT_RATE (that is reducing child mortality)

**Analysis of Data**

The analysis of pooled data for the six WAMZ countries for 30 years (1992-2002) is done in this section. The descriptive statistics, which show the statistical properties of the variables, correlations, test of stationarity for each of the variables and co-integration test are the preliminary tests carried out. Results of these tests suggested that the panel ARDL technique was fit to examine the effect of foreign aid on sustainable development in the WAMZ. The causal relationship was examined using the panel granger causality model.

**Preliminary Tests**

Descriptive Statistics

Table 2 contains the descriptive statistics, which describes the statistical properties of the variables for models 1 and 2

**Table 2. Descriptive Statistics – Models 1 and 2**

| | GNI | MORT_RATE | ODA | OOF | INFL |
|---|---|---|---|---|---|
| Mean | 2165.683 | 134.2518 | 7.59E+08 | -51.88727 | 15.85488 |
| Median | 1790.000 | 126.4000 | 3.80E+08 | -1.360000 | 10.39134 |
| Maximum | 5540.000 | 255.6000 | 1.14E+10 | 3124.520 | 100.6077 |
| Minimum | 600.0000 | 46.40000 | 34349998 | -13548.56 | -5.969119 |
| Std. Dev. | 1276.461 | 53.17540 | 1.26E+09 | 1209.737 | 18.23500 |
| Skewness | 1.281701 | 0.386926 | 5.383458 | -9.951436 | 2.554046 |
| Kurtosis | 3.032984 | 2.769959 | 3.32032 | 3.450811 | 1.37344 |
| | | | | | |
| Jarque-Bera | 41.16885 | 5.767328 | 9265.168 | 72948.98 | 465.9991 |
| Probability | 0.070552 | 0.055929 | 0.10304 | 0.643210 | 0.023127 |
| | | | | | |
| Sum | 301030.0 | 18661.00 | 1.05E+11 | -7212.330 | 2203.828 |
| Sum Sq. Dev. | 2.25E+08 | 390211.9 | 2.18E+20 | 2.02E+08 | 45887.10 |
| | | | | | |
| Observations | 139 | 139 | 139 | 139 | 139 |

**Source:** Authors' Computation (2023)

Of interest here are the skewness, kurtosis and Jarque-Bera statistics. From Table 2, GNI, MORT_RATE, ODA and INFL are skewed to the right with positive values of 1.281701, 0.386926, 5.383458 and 2.554046 respectively while OOF is skewed to the left (-9.951436). although all the variables are leptokurtic, except INFL, they all hover around the benchmark of 3 for a normally distributed variable. This is also confirmed by the probability of J-B statistics that are greater than 0.05 except INFL. The J-B results show that the variables are normally distributed.

## Correlations

**Table 3. Correlation Analysis Between the Dependent and Independent Variables**

| MODEL 1 | | | | | MODEL 2 | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | GNI | ODA | OOF | INFL | | MORT_RATE | ODA | OOF | INFL |
| GNI | 1.000000 | | | | MORT_RATE | 1.000000 | | | |
| ODA | 0.539046 | 1.000000 | | | ODA | -0.124660 | 1.00000 | | |
| OOF | -0.014923 | -0.655052 | 1.000000 | | OOF | -0.77647 | -0.655052 | 1.00000 | |
| INFL | -0.082515 | 0.006636 | -0.015661 | 1.000000 | INFL | 0.150680 | 0.006636 | -0.015661 | 1.00000 |

**Source:** Authors' Computation (2023)

The coefficients of correlations between GNI, MORT_RATE and ODA, OOF and INFL are contained in Table 3. GNI correlates in direct direction (positive) at about 54% (0.539046) with ODA and in opposite direction, though weakly, with OOF and INFL (-0.14923(-1.5%); -0.0832515 (-8.33%)) respectively. For MORT_RATE, it correlates negatively (-0.124660 (-12.5%)) with ODA and (-0.077647(-7.8%) with OOF. It however correlates positively (0.150680 (15.1%)) with INFL. These correlations are expected.

## Unit Root Tests

The variables were tested for stationarity. Results of the stationarity tests are recorded in Table 4.

**Table 4. Results of Fisher-ADF Unit Root Tests**

| Variable | At Level | | At First Difference | | Order |
|---|---|---|---|---|---|
| | Fisher- ADF Stat | Prob. | Fisher-ADF Stat | Prob. | |
| GNI | 2.04264 | 0.9960 | 39.2936 | 0.0000 | 1(1) |
| MORT_RATE | 25.9523 | 0.0038 | - | - | 1(0) |
| ODA | 10.4886 | 0.3987 | 64.9901 | 0.0000 | 1(1) |
| OOF | 32.6499 | 0.0003 | - | - | 1(0) |
| INFL | 37.1920 | 0.0001 | - | - | 1(0) |

Source: Authors' Computation (2023)

A variable becomes stationary (without unit root) when the probability of the test statistic is less than the level of significance. Here, while GNI and ODA are stationary after the first difference, MORT-RATE, OOF and INFL are stationary at level. This provides the basis for the use of VAR models for estimation of the effect of independent on dependent variables.

**Test of Co-integration**

**Table 5. Results for Co-integration Tests**

| Model 1 | | | | | Model 2 | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Hypothesized No. of CE(s) | trace test | Prob. | Max-eigen test | Prob. | Hypothesized No. Of CE(s) | Trace test | Prob. | Max-Eigen Test | Prob |
| None* | 77.13 | 0.0000 | 56.24 | 0.0000 | None* | 84.67 | 0.0000 | 57.48 | 0.0000 |
| At most 1* | 34.13 | 0.0002 | 22.88 | 0.0112 | At most 1* | 37.98 | 0.0000 | 32.59 | 0.0003 |
| At most 2 | 19.94 | 0.0298 | 16.30 | 0.0914 | At most 2 | 14.56 | 0.1490 | 15.02 | 0.1313 |
| At most 3 | 16.94 | 0.0756 | 16.94 | 0.0756 | At most 3 | 8.660 | 0.5647 | 8.660 | 0.5647 |

Source: Authors' Computation, 2023.

The Johansen's Fisher-ADF co-integration test was used to ascertain the existence of long run relationship between foreign aid and sustainable development variables. From Table 5 both Trace and Max-Eigen statistics stipulated that there exist at least two (2) co-integrating equations among the variables in both models 1 and 2, implying that there is long run relationship between the dependent and independent variables in the two models. This result provides the basis for our use of panel ARDL to estimate the effect of foreign aid on sustainable development in the WAMZ.

**Estimation of Effect of Foreign Aid on Sustainable Development**

The variables are co-integrated, hence there exists long run relationship among them. This study used the panel ARDL technique to determine the actual effect of foreign aid on sustainable development in WAMZ. The results of Panel ARDL model is summarized in Table 6.

**Table 6. Panel ARDL Results for Models 1 and 2**

| Short Run Effect | | | | | | |
|---|---|---|---|---|---|---|
| Variable | Model 1 | | | Model 2 | | |
| | Dependent Variable = GNI | | | Dependent Variable = MORT_RATE | | |
| | Coefficient | Probability | Remarks | Coefficient | Probability | Remarks |
| D(ODA) | -1.25E-07 | 0.2973 | Insignificant | 8.11E-10 | 0.7017 | Insignificant |
| D(OOF) | 0.290778 | 0.2700 | Insignificant | -0.002377 | 0.0048 | Significant |
| D(INFL) | 0.698591 | 0.2629 | Insignificant | -0.004501 | 0.2005 | Insignificant |
| COINTEQ01 | -0.014552 | | | | | |
| Long Run Effect | | | | | | |
| ODA | 2.15E-06 | 0.0006 | Significant | 0.95280 | 0.0000 | Significant |
| OOF | 0.212849 | 0.9126 | Insignificant | -0.12730 | 0.0017 | Significant |
| INFL | 5.304143 | 0.6298 | Insignificant | 0.291084 | 0.0652 | Insignificant |
| | | | | | | |

Source: Authors' Computation (2023)

As revealed in Table 6 with respect to the effect of foreign aid on sustainable development from poverty reduction perspective, in the short run, a unit increase in official development assistance (ODA) will cause an insignificant decline of 0.00000125 in GNI (Gross national income per capita) ($p$ = 0.2973>0.05 level of significance (LOS)). Other official flows have an insignificant positive effect (Coeff 0.290778, $p$ = 0.2700>0.05) on GNI. The rate of inflation INFL also exerted an insignificant positive effect on GNI in the short run (coeff. 0.698591, $p$ = 0.2629>0.05 LOS). All these results contradict the theoretical *apriori* expectations on the relationship between foreign aid and sustainable development in the WAMZ.

On the long run, ODA exerted significant positive effect on GNI (coeff 0.0000215 $p$ = 0.0006<0.05 LOS) such the GNI increased by 0.000215 as ODA increased. However, the positive effect of OOF on GNI was insignificant (coeff 0.212849, $p$ = 0.6298>0.05 LOS). The effect of INFL on GNI was also positive and insignificant.

With respect to the effect of foreign aid on sustainable development from health indicator perspective in the short run, ODA also exerted an insignificant positive effect on MORT_RATE (coeff 8.11E-10, $p$ = 0.7017>0.05 LOS). OOF had a significant negative effect on MORT_RATE (coeff -0.002377, $p$ = 0.0048<0.05 LOS) implying that during the short run, OOF reduced child mortality rate. This is theoretically expected. On its part, INFL had an insignificant negative effect on MORT_RATE (coeff -0.004501, $p$ = 0.2005>0.05 LOS).

On the long run, ODA exerted a significant positive effect on MORT_RATE such that a unit increase in ODA will increase child mortality by about 9.52E-08. This result is contrary to the theoretical expectation that ODA should reduce child mortality. Similarly, OOF had a significant negative effect on MORT_RATE such that a unit increase in the former will reduce the latter by about 0.12730; this result is expected. Finally, the effect of INFL on MORT_RATE is statistically insignificant.

Comparatively, the effect of foreign aid variables on sustainable development in the WAMZ differs between poverty reduction and improved mortality rate considerations as revealed in the results. In the short run, foreign aid did not have any statistically significant effect on poverty

reduction/income improvement but had a mixed effect on child mortality rate. On the long run, however, official development assistance and official flows had a positive effect on poverty reduction/improved income and child mortality rate. These effects are significant.

## Discussion of Findings

This study examined the effect of foreign aid on sustainable development in the West Africa Monetary Zone which comprises of six West African countries from two perspectives: poverty reduction and child mortality. First, results from panel ARDL analysis revealed on the long run, official development assistance from foreign countries positively affected the national income (GNI) during the period under examination. This result is expected and agrees with the theoretical expected effect as one of the cardinal goals of the sustainable development agenda is poverty reduction through improved income for the people. This however contradicts the finding of Babalola and Shittu (2020) who found that foreign aid did not have positive effect on sustainable development in selected West African countries. However, it is important to observe that foreign aid did not have any significant effect on sustainable development in terms of poverty reduction in the short run. This means that the intended impact of foreign aid on poverty reduction may not be achievable within a short period because of the time lag between advancement of foreign aid, execution of income generating ventures and transmission of the income to the people.

Second, and interestingly too, foreign aid had a positive effect on child mortality rate during the long run. This relationship is theoretically unexpected as a key objective of sustainable development effort is reduction in the mortality rate of under five children. As shown in the results, rather than reduce child mortality, official development assistance increased it. Several factors earlier discussed in this research can be the cause of this unexpected relationship (Ibrahim, 2022; Umeh, 2019). The significant effect during the short run can be attributable to the fact that some foreign aid for health-related issues is in the form of response to emergency health situations and distribution of health materials such as drugs. Hence, the effect of such aids is expected to be immediate. Overall, this study shows that foreign aid in terms of official development assistance (ODA) does not reduce the mortality rate.

## Conclusion

The extent to which foreign aid has affected sustainable development in the West Africa Monetary Zone in the light of stated Sustainable Development Goals is the focus of this study. The study examined the effect of two foreign aid variables namely, official development assistance and other official flows on the gross national income index as a measure of poverty reduction/income enhancement and health captured by under-five mortality rate. The study used a pooled data of six West African countries that belong to the WAMZ from 1992 to 2020. Having ascertained the nature of the stationarity of selected variables (mixed) and the presence of long run relationship, the study used two panel autoregressive distributed lag (panel ARDL) to analyze data sourced from the World Bank Development Indicators and the OECD databank.

Two models were developed to examine sustainable development from two goals perspectives – poverty and health. Results from analyses carried out show that in the short run, foreign aid did not significantly affect poverty reduction but significantly reduced child mortality. Furthermore, on the long run, foreign aid significantly aided poverty reduction but had mixed effects on child

mortality rate. A comparison analysis shows that in both the short and the long run, there is a marked difference between the effect of foreign aid on poverty reduction and child mortality rate.

This study concludes that foreign aid significantly affected sustainable development in the WAMZ based on the aforementioned findings, hence, the null hypothesis of no significant relationship between the variables cannot be accepted. The study further concludes that the effect of foreign aid variables differs across goal areas and that despite the misgivings on the sincerity of foreign aid donors, the countries in the West Africa Monetary Zone can still benefit if judicious use is made of such aid flows into the countries.

**Recommendations**

Based on the findings, the study recommended the following;

i. A closer monitoring of the disbursement and spending of foreign aid towards set sustainable development goal is advocated in order to correct those aid elements that have unfavourable effects. As noted earlier in the study, poor coordination, corruption and mismanagement have been the bane of foreign aid deployment in many developing countries.
ii. Efforts must be made by governments and policy makers in the WAMZ countries to attract more financial aid because of its critical role in addressing the set objectives of sustainable development.

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