Official Development Assistance and Economic Development: Evidence from the West African Monetary Zone

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Authors' contributions

This work was carried out in collaboration between all authors. Author JUJO designed the study. Author CAA performed the statistical analysis and wrote the protocol. Author AEA managed the literature searches. Author HCE wrote the first draft of the manuscript and managed the analyses of the study. All authors read and approved the final manuscript.

Original Research Article

ABSTRACT

The goal of this paper is to examine the linkage between official development assistance (ODA) and economic development in the West African Monetary Zone (WAMZ). The study made use of annualized data from six WAMZ countries from 1986 to 2015. The Panel OLS technique was employed to estimate our model. The findings revealed that official development assistance has significant negative effect on per capita income in the region. A unit change in ODA leads to 3.6% decline in GDP per capita within the period. External debt services however exert positive but insignificant impact on per capita income. The results further show that inflation rate has negative effect on GDP per capita. These findings were confirmed by orthonormal biplot analysis.

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1. INTRODUCTION

The debates on the effectiveness of official aid to the recipient economies continue to dominate the discourses in the Development Finance literature. Given the critical role of foreign aid to overall development of a country, it becomes necessary to explore its actual contribution to economic development of developing economies. Sub-Saharan Africa (SSA) enjoys more external aid than any other region in the world. Since 1960, aid donors have channeled over US$568 billion to the development of Sub-Saharan Africa, which estimated to be 15% of the continent's GDP [1]. The relationship between Official Development Assistance (ODA) and economic development in developing countries has been subjected to empirical investigation since its emergence in 1950. Recent studies appear divided on whether ODA have actually supported growth and development. Some studies argue that ODA has been effective in driving growth in SSA (see [2,3,4,5]), while other studies contend that official aid has not actually translated to economic growth and development (see [6,7,8]). Also, some empirical works maintain that foreign aid has mixed effects on economic growth and development (see [9,10]).

As aid to the developing African countries continues to rise, the ongoing dominant question in development finance literature is, whether the increased aid inflow has produced the expected developmental result. Foreign aid is meant to play a major role in stimulating economic development by supplementing domestic sources of finance such as savings, which will lead to increase in the amount of investment and capital stock. Aid can drive growth and development through a number of mechanisms. Firstly, foreign aid promotes investment and boost both physical and human capital. Secondly, aid inflows enhance the capacity of the beneficiary countries to import capital goods and technology. Thirdly, aid is a major determinant for technology transfer which ensures sustained increase in productivity, innovation and technical change [9]. Foreign aid critics have emphasised that the development impacts of aid suffer major setback due to institutional failures and poor governance. The findings in [1] confirm this very notion and suggest that ODA is only effective in the presence of effective control for governance.

In the same vein, the World Bank argues that governance crisis has been the cause of the numerous development problems in Africa. Prevalence of corruption, lack of accountability andpoor quality institutions characterise many African countries today. While there is significant reduction in aid level for most African states, aid level to countries with poor governance rating remains on the increase and makes up substantial percentage of government [8]. Based on the lack of consensus on aid effectiveness and the perceived institutional influence in aid management, we attempt to evaluate the effect of official development assistance (ODA) on economic development in the West African Monetary Zone (WAMZ). WAMZ is a regional bloc comprising six English speaking West African countries with targeted objective of improving trade relation, and foster development among the member states, hence our choice of this region as our case study. Data availability is yet another reason for selecting WAMZ for this empirical study.

2. REVIEW OF RELATED LITERATURE

Foreign aid has been debated with regards to its purpose, efficiency and effectiveness, producing a split literature as there has not been a consensus in the outcomes of these studies [11]. In an effort to accelerate economic development and social outcomes, the concept of ODA remains more pronounced. ODA is defined as flows of official financing extended with the main objective of promoting economic development and welfare of developing countries, and which are concessional in character with a grant element of at least 25 percent (using a fixed 10 percent rate of discount). Conventionally, ODA flows comprise contributions of donor government agencies to developing countries and multilateral institutions. ODA receipts comprise disbursements by bilateral donors and multilateral institutions. However, disbursements by export credit agencies - with the specific purpose of export promotion is not included. ODA statistics also comprise expenditure on technical assistance (or technical cooperation) [10].

[12] highlighted that in March, 2002 the major donor governments met in Monterrey, Mexico and pledged huge increase in aid or ODA to the world's poorest countries. Also, in 2005, a

renewed campaign for aid emanated from the United Kingdom government and the United Nations. Much of this new aid has been committed to Sub- Saharan Africa, the region that has seen the most resilient poverty level, and likely to receive a major portion of any new increase in aid. African countries share of foreign aid has been at least 30 per cent of the total donor aid commitments to developing countries. The geographical distribution of aid is the result of independent allocation decisions of a large number of bilateral or individual donors and multilateral agencies [13].

A fundamental argument for aid, especially on economic grounds, is that it accelerates economic growth in beneficiary countries. Recent studies have lent insight into the empirical question of foreign aid effectiveness. Research findings indicate that when other determinants of growth are controlled for, especially economic policy, aid has no economic growth effect. Aid contributes positively to growth in those countries with high values for the policy indicator; poor policy renders aid ineffective [14]. [15] supports this argument and highlighted that the internal "structural" problems and external factors impeding African countries economic growth have been exacerbated by domestic policy inadequacies.

In search of growth however, the dual-gap theory which is grounded in a Harrod Domar growth model is our conceptual underpinning of the relation between official aid and economic advancement. This analytical framework maintains that savings are critical in financing investment required to achieve targeted growth rate, subject to productivity of capital. Poor countries are faced with insufficiency of resources/fund for investment. In view of the financing gap, aid is needed to finance investment which fill the savings-investment gap, and drive economic development and improve welfare as official aid can also fund government spending and compensate for a small domestic tax base [14].

In the quest to establish the relative effectiveness of aid, recent empirical literatures have breathed life into the subject. [2] used the cointegrated VAR model as statistical benchmark to analyse the long-run effect of foreign aid (ODA) on key macroeconomic variables in 36 Sub-Saharan African countries between 1960 and 2007. Result provided support for a positive long-run impact of ODA flows on the macroeconomy. In contrast, the findings have little evidence supporting the argument that aid has been harmful (See [4,3]).

[16] appear to have slight contradiction to the above thesis. The researchers assessed the relationship between foreign aid and economic development in Sub-Saharan Africa. They adopted a theoretical framework similar to the Endogenous/New Growth model and the System Generalized Method of Moments (GMM) technique of estimation in order to overcome the challenge of endogeneity perceived in the institution variables and Aid-Growth argument. It was observed that foreign aid does not significantly influenced Real GDP Per Capita in Sub-Saharan Africa, even after controlling for adequate rule of law and sound public institutions. [17] examined the effect and the individual effects of the sources of capital inflow, official development assistance (ODA), remittances and debt on economic growth for 33 countries in Sub-Saharan Africa (SSA) for the period spanning 1970 to 2010. Using system generalised method of moments (Sys-GMM), and in line with the outcome in [18], the exact impact of ODA was uncertain (see also [19]).

[20] revisited the aid effectiveness debate using a vector autoregression model which is applied to a panel of Sub-Saharan African countries. This method allowed for analysing the impact of foreign aid on human development and economic development simultaneously. The result of the full sample indicated a small increase in economic growth following a fairly substantial aid shock. The size of the effect puts the result somewhere between the arguments of aid optimists and those of aid pessimists. Human development, as proxied by the growth rate of life expectancy, shows a small but positive response to aid shocks. Also, economic growth is found to respond more to aid shocks in groups defined by better economic policies, poor institutions and high aid dependence.

[21] investigated whether different types of sectoral aid flows do affect growth differently in different time settings. The analysis is carried out on a data sample of the Sub- Saharan African countries for the years 1995-2011. By using a database of sectoral aid flows it was found that different aid flows do not only varies by impact on economic growth, but also that the impact of the aid flows affects economic growth differently in different time spans.

In a related study, [22] examined the impact of aid and its volatility on sectoral growth by relying on panel dataset of 37 sub-Saharan African (SSA) countries for the period 1980 to 2014. Findings from the system generalized methods of moments (GMM) show that, while foreign aid significantly drives economic transformation, aid volatility deteriorates sectoral value additions with huge impact on the non-tradable sector and a no apparent effect on the agricultural sector. However, the deleterious effect of aid volatility on structural economic transformation in SSA is weakened by a well-developed financial system with a large dampening impact on the tradable sector.

3. DATA AND METHODOLOGY

This study has 180 observations. Data sets for the six WAMZ countries were obtained from the World Bank economic indicators database for the period 1986-2014. The type of data applicable in the study however is the panel data – having the combination of time-series and cross-sectional features. Individual characteristic of the variables was analysed with descriptive statistics. The panel unit root test was employed to test for the stationarity of the series. Our model was analysed with both fixed and random effect panel regression, while the Hausman test was used to determine the best and appropriate choice between the two.

3.1 Model Specification

We adopted and modified the general model proposed by [17]. The study examined Aid effectiveness in Africa. The panel regression model specified in the work is as follows:

$$Y_{it} = \alpha_0 + \alpha_n N_{it} + \alpha_x X_{it} + \varepsilon_{it} \qquad (1)$$

Where

Y_{it} = per capita income growth of the *i*th country for period *t*;
N_{it} = is a vector of variables of interest to us (i.e., aid and aid-squared),
X_{it} = is a vector of exogenous variables typically included in growth models (notably physical and human capital accumulation and policy variables), and
ε_t = Error term at time *t*.

Following from the general model above, the specific model estimated is:

$$PIGR_{it} = \beta_0 + \beta_1 ODA_{it} + \beta_2 EDS_{it} + INF_{it} + MS\_GDP_{it} + \varepsilon_{it} \qquad (2)$$

Where

i and *t* denotes country specific and time respectively, and

PIGR = per capita income growth rate
ODA = ODA (measured as the ratio of official development assistance to GDP)
EDS = External debt services (measured as the ratio of total debt services relative to GDP)
INF = Inflation rate (percentage change in consumer price index).
MS_GDP = Broad money supply (% of GDP)
E = error term.

4. RESULTS AND DISCUSSION

Table 1 presents the result of the descriptive Statistics. The result indicates that per capita income growth (PIGR) in the WAMZ region grew at an average rate of 0.73 percent, while official development assistance (ODA) relative to GDP averaged 60.6 percent. Per capita income was highest at 91.64 percent and lowest at negative 50.23 percent. EDS and INF averaged 4.98 percent and 19.04 percent respectively while mean value of broad money relative to GDP (MS_GDP) was 22.19 percent over the period covered by the study.

The summary of the unit root test results for our series as presented in Table 2 shows that the variables attained stationarity at first difference based under the four criteria with p-value less than 5% significant level.

The Random effect panel OLS result in Table 3 reveals that ODA has had significant negative effect on per capita income in the WAMZ region. The result shows that when ODA increases by 1%, income per capita falls by 3.6%. Also, inflation rate exerted negative influence on per capita income growth (PIGR) within the period. External debt services (EDS) and broad money supply relative to GDP (MS_GDP) however had positive but insignificant effect on the variable of interest (PIGR). The overall regression is found to be significant as indicated by F-statistic with p-value<0.05, hence the independent variables jointly have significant effect on the explained variable. DW statistic also shows that our model has no autocorrelation problem.

The above Random effect model was chosen over the Fixed effect model because the Hausman's Test suggest that the former is more appropriate. The Hausman's test result is presented in Table 4 and has p-value>0.05 which justified our choice of Random effect estimation.

The above results is of the biplot covariance analysis which shows that ODA and inflation are negatively related to PIGR, while external debt services (EDS) and MS_GDP are positively related to PIGR. Fig. 2 is however simplified in Table 5.

Table 1. Descriptive statistics

	PIGR	ODA	EDS	INF	MS_GDP
Mean	0.736747	60.59088	4.977677	19.04155	22.18339
Median	1.574876	49.67943	3.250346	11.69059	20.41169
Maximum	91.64805	472.7201	109.9582	178.7003	102.5800
Minimum	-50.23014	1.176405	0.063535	-35.83668	0.520064
Std. Dev.	10.89314	69.59648	10.56280	23.34464	12.42699
Observations	179	180	180	145	172

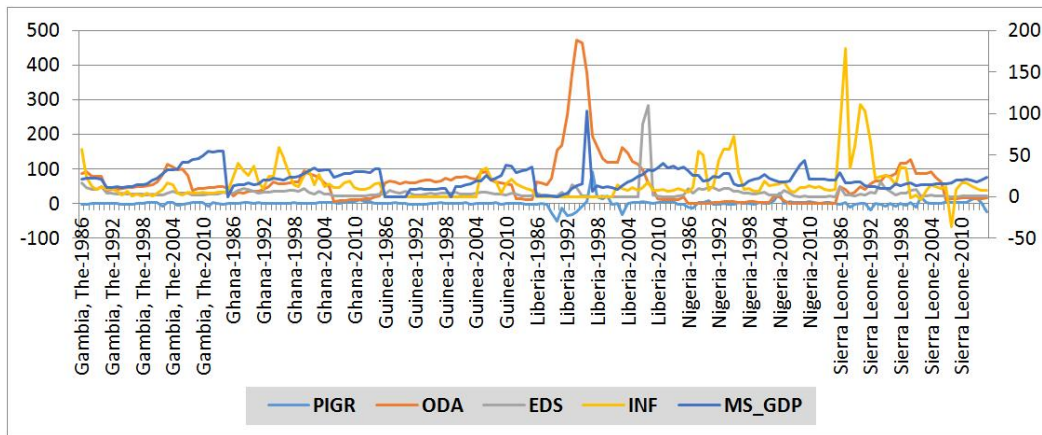*Source: Researcher's Eviews Results*

Fig. 1. Graphical representation of variable proxies

Table 2. Unit root test results

Variable	Levin, Lin & Chu t	Im, Pesaran and Shin W-stat	ADF - Fisher	PP - Fisher	Inference
D(PIGR)	-7.35253**(0.0000)	9.89850**(0.0000)	100.131**(0.0000)	173.490**(0.0000)	I(1)
D(ODA)	-8.82367**(0.0000)	-5.30133**(0.0000)	105.286**(0.000)	679.143**(0.0000)	I(1)
D(EDS)	-9.55108**(0.0000)	-12.6095**(0.0000)	151.433**(0.0000)	977.872**(0.0000)	I(1)
D(INF)	-6.25502**(0.0000)	-4.85372**(0.0000)	97.8994**(0.0000)	721.331**(0.0000)	1(1)
D(MS_GDP)	-5.62614(0.0000)	-6.64254(0.0000)	64.6114(0.0000)	128.783(0.0000)	I(1)

**signifies stationary

Table 3. Panel regression result

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(ODA)	-0.035867	0.015797	-2.270559	0.0247
D(EDS)	0.022696	0.045029	0.504022	0.6150
D(INF)	-0.020682	0.022785	-0.907698	0.3656
D(M2/GDP)	0.001447	0.055365	0.026135	0.9792
C	2.848916	1.859330	1.532227	0.1277
R^2	0.783509			
Adjusted-R^2	0.756652			
F-statistic	31.649871 (0.000000)			
DW	1.985510			

Source: Researcher's Eviews Results

Table 4. Hausman test result

Correlated Random Effects - Hausman Test			
Equation: Untitled			
Test cross-section random effects			
Test Summary	**Chi-Sq. Statistic**	**Chi-Sq. d.f.**	**Prob.**
Cross-section random	0.480868	3	0.9753
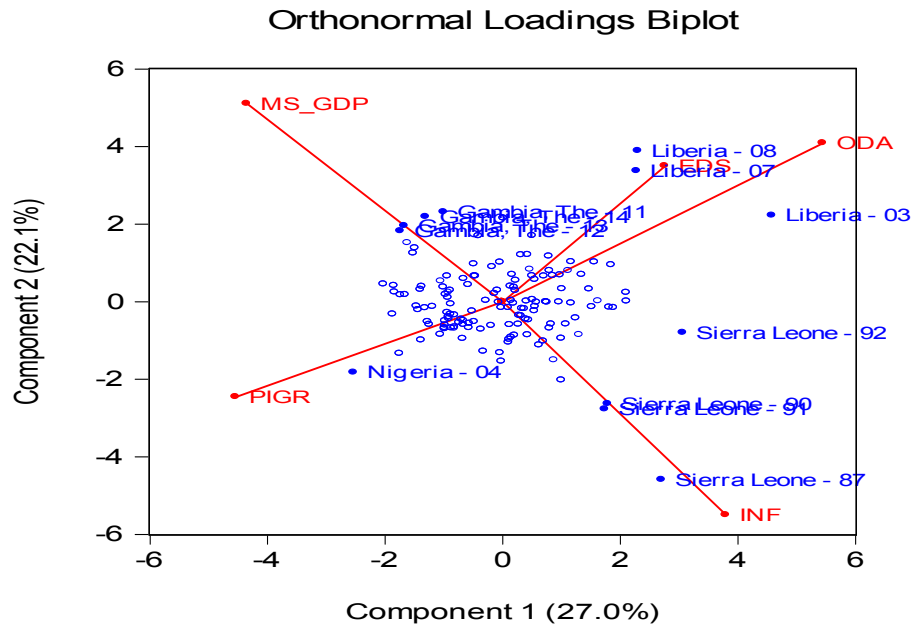
Fig. 2. Orthornormal loading output

Table 5. Correlations analysis

	PIGR	**ODA**	**EDS**	**INF**	**MS_GDP**
PIGR	1.000000				
ODA	-0.210701	1.000000			
EDS	0.002987	0.152126	1.000000		
INF	-0.068482	-0.000400	0.066004	1.000000	
MS_GDP	0.041892	-0.120928	0.023433	-0.192178	1.000000

Source: Researcher's computation

5. CONCLUSION

It is acknowledged that the Sub-Saharan Africa in general receives the highest amount of official aid compared to any other region of the world. The increasing level of aid flows to the region in general and the WAMZ in particular is expected to boost the economy in the entire region and accelerate economic development. Whether official aid has been able to achieve the targeted objective is the empirical question this paper addressed. The study revealed that ODA has not impacted positively on income per capita in the zone; external debt services had positive influence on GDP per capita; and inflation rate had negative effect on per capita income. It was therefore conclude that the ODA has not yielded the expected result in boosting standard of living in the context of per capita income in the WAMZ region. Based on the study, it is recommended that aid should be effectively managed and applied in such ways that will promote economic development in the region, and advance the well being of the people. Hence, aid donors should take decisive measures to ensure that foreign aid recipients use the aids for the purpose for which

it is given in order to ensure that the intended objectives are achieved.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Douzounet M, Yogo UT. Heterogeneity of the effects of aid on economic growth in Sub-Saharan Africa: Comparative evidence from stable and post- conflict countries. African Development Group Working Paper. 2013;179.
2. Juselius K, Møller NF, Tarp F. The long-run impact of foreign aid in 36 African countries: Insights from multivariate time series analysis. Oxford Bulletin of Economics and Statistics. 2014;76(2): 0305–9049.
   Available:http://doi.org/10.1111/obes.1201 2
3. Refaei R, Sameti M. Official development assistance and economic growth in Iran. International Journal of Management, Accounting and Economics. 2015;2(2): 125–1354.
4. Moreira SB. Evaluating the impact of foreign aid on economic growth: A cross-country study. Journal of Economic Development. 2005;30(2):25–49.
5. Capita AF. Foreign assistance & economic growth in Sub-Saharan Africa. International Economics and Business Studies (Master Thesis), Department of Economics, Erasmus School of Economics. 2013;1–52.
6. Mbah S, Amassoma D. The linkage between foreign aid and economic growth in Nigeria. International Journal of Economic Practices and Theories. 2014;4(6):1007–1017.
7. Ismail AB. Why foreign aid failed in Sub-Saharan Africa. EY International Congress on Economics. 2015;2:1–17.
8. Bräutigam DA, Knack S. Foreign aid, institutions, and governance in Sub-Saharan Africa. Economic Development and Cultural Change. 2015;52(2):255–285.
9. Ekanayake EM, Chatrna D, (n.d.). The effect of foreign aid on economic growth in developing countries. Journal of Inter-national Business and Cultural Studies. 2010;1–13.
10. Akinkugbe O, Yinusa O. ODA and human development in Sub-Saharan Africa: Evidence from panel data. Paper Prepared for Presentation at the 14th Annual Conference on Econometric Modelling for Africa Organised by African Econometrics Society, at the Sheraton Hotel, Abuja-Nigeria. 2009;8–10.
11. Bountagkidis GK, Fragkos KC, Frangos CC. EU development aid towards Sub-Saharan Africa: Exploring the normative principle. Social Sciences. 2015;4:85–116.
    Available:http://doi.org/10.3390/socsci4010 085
12. Moss BT. Current issues in development assistance to Sub-Saharan Africa. Sub-Saharan Africa: Regional Overview. 2005;4–15.
13. Loxley J, Sackey HA. Aid effectiveness in Africa. African Development Bank. 2008;163–199.
14. Gomanee K, Girma S, Morrissey O. Aid, investment and growth in Sub-Saharan Africa. Paper Prepared for the 10th General Conference of EADI, Ljubljana. 2002;19–21.
15. World Bank. In Sub-Saharan Africa accelerated development an agenda for action. The World Bank, Washington, D.C. 1981;14030:2-217.
16. Ogundipe A, Ogundipe O. Is aid really dead? Evidences from Sub-Saharan Africa. MPRA Paper. 2013;51694.
    Available:Http://mpra.ub.uni-muenchen.de/51694/
    (Retrieved 20/06/2017)
17. Raheem ID, Adeniyi OA. Capital inflows and outflow and economic growth in Sub-Saharan Africa. International Journal of Economics and Business Research. 2015;10(1):66–80.
    Available:http://doi.org/10.1504/IJEBR.201 5.070276
18. Alia DY, Anago REK. Foreign aid effectiveness in African economies evidence: Evidence from a panel threshold framework; 2014.
19. Veledinah MJ. Impact of official development assistance on economic growth in Kenya. Masters Thesis, University of Nairobi; 2014.
20. Gillanders R, (n.d.). The effects of foreign aid in Sub-Saharan Africa. UCD Centre for Economic Research Working Paper Series, (11/16). 2016;2–31.

21. Nilsson E. The effect of foreign aid on growth in sub-Saharan Africa a panel data study on sectoral aid flows. Masters Thesis, School of Economics and Managemet, Lund University. 2013;1–49.

22. Kumi E, Ibrahim M, Yeboah T. Aid volatility and structural economic transformation in Sub-Saharan Africa: Does finance matter? ERSA Working Paper. 2017;655:1–27.