

Complementarity of Foreign Aid and Domestic Savings as Drivers of Economic Growth: Evidence from WAMZ¹ Countries

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Abstract

This study examined the impact of foreign aid and domestic savings on economic growth in the WAMZ countries, while including control variables: domestic investment, labour force, trade openness, financial liberalization and foreign direct investment. Panel Data Analysis and GMM were compared for the period 1980 and 2012. The paper found that economic growth obviously deteriorates with foreign aid and hence does not complement the role of saving on economic growth of the WAMZ countries. Savings on the other hand was found to be positively significant in increasing economic growth in the sub-region. Labour force and financial liberation (M2) and FDI exhibit economic growth. A policy implication of the result is that the countries in the West African Monetary Zone should be wary in soliciting for foreign aid. If

¹ West Africa Monetary zone (WAMZ) comprises of Ghana, Nigeria, Guinea, Sierra Leone, Liberia and The Gambia.

foreign aids become expedient, then it should be channeled to productive ventures.

Keywords: Foreign aid, Savings, Economic growth, and GMM.

Introduction

The pattern of economic growth in WAMZ countries has been very unstable in the last couple of decades. Consistent economic contraction characterized most of the countries in the sub-region between the periods 1970 to 2012. The scenario is evidenced by negative growth rate in the period, an indication of economic recession or depression in these countries. Although the economic growth of the three largest economies in the sub-region, Ghana, Nigeria and Sierra Leone have improved in the last decade, same cannot be said about the rest countries. It becomes expedient therefore, to consider the possible growth drivers that can reverse the economic contraction and instability of the WAMZ countries.

Saving is one of the economic growth drivers - an important precondition for economic growth, macroeconomic balance and the maintenance of financial and price stability (Arawomo, 2012). Gale and Sablehouse (1999) defined savings as output of resources which have been unconsumed in current year and available for future period. Accordingly, a relatively low level of domestic saving could limit growth and makes the country much more vulnerable than it would otherwise be to international capital shifts. There has been a marked divergence in the level of saving rates across the world in the last few decades. While countries in East Asia, Europe and America saved as much as 30%, disappointingly, the average saving rate in Africa is around 16%. More worrisome is that the average saving rate of countries in WAMZ is below 11% (Adewuyi et al 2010).

Foreign aids come handy to augment domestic saving, especially in sub-regions like WAMZ that have low saving rates. The expectation is that aid would stimulate social and economic reforms by providing funds for development projects such as infrastructure, technologies, education and health among others and, hence, increase the rate of investment, which will lead to a higher growth rate (Shields, 2007). The effectiveness of foreign aids in enhancing economic growth has been

subjected to empirical test. Burnside and Dollar (2000) for instance reported ineffectiveness of aids for 56 developing countries and attributed this to the lack of good policy environment. Foreign aid is expected to be more effective in countries with good macroeconomic policies, than with bad macroeconomic policies.

Despite the existence of growing literature on the effects of aid, saving and growth, theoretical and empirical work on the subject is yet to produce a consensus. There are two major strands in the literature. First, proponents of foreign aid assert that overseas capital inflow is necessary for economic growth in the less developed countries. They claim that there exist a positive relationship between aid and economic growth because it complements domestic resources and also supplements domestic savings. (Chenery and Strout (1966); Papanek (1973); Gulati (1975); Gupta (1975); Over (1975); Levy (1988); Islam (1992, Fayissa and El-Kaissy, 1999)). The second proponents are related to the emergence of the view that external capital exerts significant negative effects on the economic growth of recipient countries. According to this view, foreign aid is fully consumed and substitutes rather than compliments domestic resources. The following empirical literature on the aid-savings nexus seems to ascertain the savings displacement hypothesis (Griffin (1970); Griffin and Enos (1970); Weisskoff (1972); Boone (1994); (1996); Easterly (1999); Gupta and Islam (1983)).

The pertinent questions practitioners and policy makers seek to discover is: What is the impact of aid-saving nexus on growth in WAMZ? Does foreign aid complements or displaces savings? Does foreign aid increases economic output? If so, at what level should foreign aid be sought for? These among other questions are the major thrust of this paper. Although some studies have examined the relationship between foreign aid, saving and economic growth, both in the developed and developing countries, yet there is still a dearth of research for the sub-Saharan Africa countries and WAMZ, in particular. Moreover, the study differs from the few done for African countries by comparing the static and dynamic panel analyses. This study primarily focused on aid, saving and growth nexus in WAMZ starting from 1980 to 2012.

This paper is structured into six main sections. In section 2, the review of the previous study was provided, while in section 3, some stylized facts on the growth rate, foreign aid and savings in WAMZ

countries are discussed. Section 4 provides a brief review of the existing literature. Section 5 addressed the theoretical framework and methodology of the study, while section 5 presented and discussed the empirical results. The last section of the paper concluded with some policy implications.

Literature review

Review of Previous Studies

A number of studies have examined the relationship between foreign aids, domestic savings and economic growth. This particular area of research has drawn the attention of researchers over the recent years. However, most of the studies in this area have examined the role of aid on economic growth without taken cognizance of the complementarity of saving and aids as determinants of growth. A summary of the findings of major studies is provided in this section.

Gomanee et al (2002) examined the impact of aid on growth using a sample of 25 Sub-Saharan African countries over the period 1970 to 1997. Findings show that foreign aid has a significant positive effect on economic growth. The study identified investment as the most significant transmission mechanism through which aids impact on growth. They concluded that Africa's poor growth record needs to be attributed to factors, other than aid ineffectiveness.

Ouattara (2006) analyzed the effects of aid flows on key fiscal aggregates in Senegal. It utilizes data over the period 1970-2000 and primarily focuses on the interaction between aid and debt. The result showed that approximately 41% of Senegal's debt and 20% of the government's resources are devoted to debt servicing. The study suggested that debt reduction could become a more successful policy tool than obtaining additional loans. Salisu (2007) examined aid, macroeconomic policy environment and growth in sub-Saharan Africa, using a panel regression model covering twenty Sub-Saharan African countries. His estimation was done with OLS and TSLS over a period of 1970 to 2001. His empirical finding showed that a sound macroeconomic environment is sine qua non for the effective contribution of aid to sustainable growth.

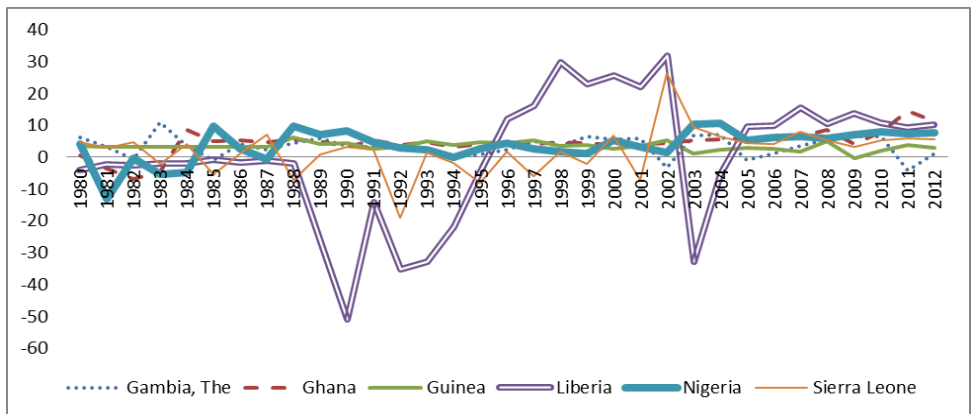
Fasanya and Onakoya (2012) analyzed the impact of foreign aid on economic growth in Nigeria for the period 1970-2010. The empirical analyses rely on the neo-classical approach. Empirical finding shows

that aid flows has significant impact on economic growth in Nigeria. Yakama (2013) re-examined foreign aid led growth in West Africa. The study concluded that panel co-integration results indicate a long run relationship between aid and growth in the whole panel. There is evidence of unidirectional causality from foreign aid to economic growth, and from economic growth to foreign aid and there are cases where both variables are independent.

Pattern of Economic Growth, Saving Rate and Foreign Aid in WAMZ Countries

The pattern of economic growth of WAMZ countries has been very unstable in the last couple of decades. Consistent economic contraction characterized most of the countries in WAMZ between the periods 1970 to 2012, evidenced by a negative growth rate. This is an indication of economic recession or depression in these countries.

Fig. no. 1: Real Growth Rate of GDP per capita (annual %) in WAMZ Countries

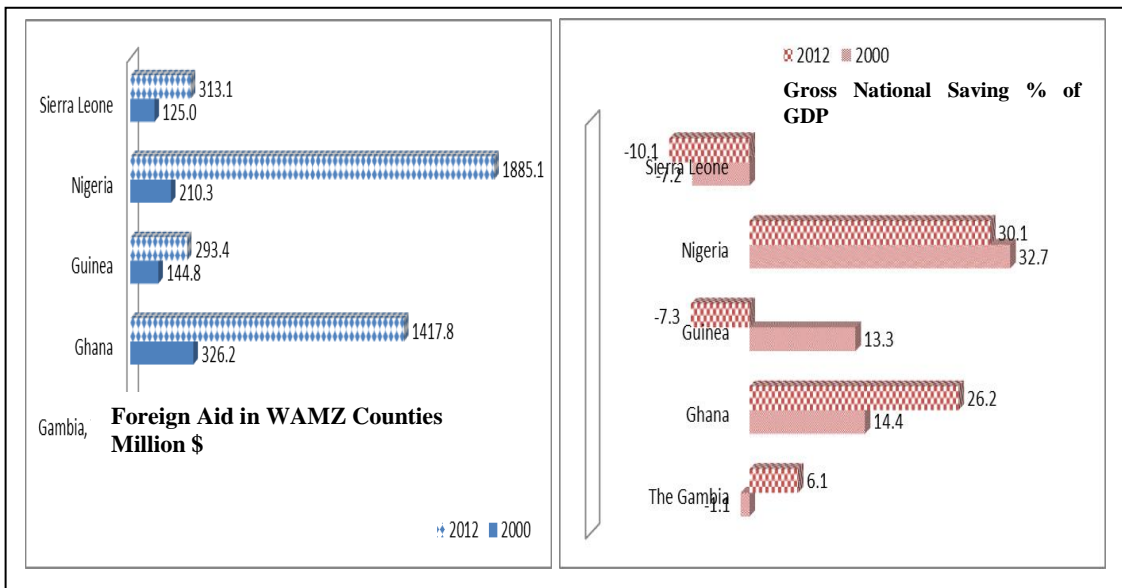


Depicted in figure no. 1, based on available data from World Development Indicators is the annual growth rate of GDP per capital between 1970 and 2012. Gambia recorded negative growth rate in about 22 years, while in 2012, the country’s economy still stinks by 6.9%. The same scenario is the case of Liberia, as the country’s economy declined in most of the period because of the civil war. For Ghana, Nigeria and Sierria Leone, similar economic growth pattern was observed between 1970 and 2000, the negative economic growth witnessed by these

countries in the period changed around 2000, and they have been having consistent growth rate in the last decade.

There are consistent increases in the foreign aids received by the WAMZ countries during the studied period, especially 2000-2012, as shown in figure no. 2. Substantial growth in the aids received by Nigeria and Ghana is quite noticeable. While the rate of saving of Ghana and Gambia got improved in the same period, those of Sierra Leone, Guinea and Nigeria declined.

Fig. no. 2: Foreign Aids and Saving Rate in WAMZ Countries



Theoretical Framework and Methodology

Theoretical Framework

Following the above review of literature, we have employed standard production function approach from the earlier studies (Islam, 1992; Gupta and Islam, 1983; Husain, 1992; Ahmed and Hamdani, 2003; Burke et al, 2006; Khan and Ahmed, 2007, among others). The initial step in the process is the specification of an explicit Cobb-Douglas production function of usual form, as follow:

$$Y = F(w) \tag{1}$$

Where Y is the real GDP, F is the transformation rule associating Y and w is the vector of explanatory inputs. Assuming a multiplicative aid-trade augmented production function and that capital (K), Labour (L), foreign aid (A) and exports (X) ε q, Equation (1) becomes

$$Y = \varphi K^\alpha L^\beta A^\delta X^\gamma e^\mu \tag{2}$$

Where u is the normally distributed random error term. The inclusion of exports in the conventional production function may be justified on two grounds. First, exports allow countries to specialise in the production of such commodities in which they have comparative advantage. Exports growth facilitates the exploitation of scale economies, allows for increased capacity utilisation and encourages efficiency through specialisation in accordance with the principles of comparative advantage. Second, the export sector is assumed to generate positive externalities, such as relaxing foreign exchange constraints and the introduction of technology and knowledge. It is also assumed that with the given level of capital and labour, the larger the size of the export sector, the larger the gross value of production. (Rana and Dowling, 1990). The inclusion of foreign aid in the conventional production function can also be found in Tyler (1981), Feder (1982), Gounder (2001), Amavilah (1998) and Burke, et al. (2006) among others. Following Burke, et al. (2006), Ahmed and Hamdani (2003) we break total capital stock (K) into domestic capital (k_d) and foreign capital (k_f) i.e. $K = k_d + k_f$. Now, the Equation (2) becomes:

$$Y = \varphi K_d^\alpha K_f^\beta L^\beta A^\delta X^\gamma e^\mu \tag{3}$$

The log-linear form of equation (3) can be given as

$$\log Y = \log \varphi + \alpha \log k_d + \beta \log k_f + \beta \log L + \delta \log A + \gamma \log X + \mu \tag{4}$$

Where u is the random variable, which capture the impact of other variables not included in the model.

The inclusion of Equation (4) implies that economic policies, particularly foreign capital which are determined by external policy

which influence the efficiency of the production process. Since the data for domestic capital stock and foreign capital stock are not available, therefore we employ the use of domestic investment as a share of GDP and foreign investment share of GDP, as proxy for the domestic capital and foreign capital, respectively.

Methodology

Model Specification

In line with the work of Islam (1992) and Gupta and Islam (1983) we specify equation (5) as our estimable model, while controlling for openness and financial liberalization.

$$GDPGR_{it} = \alpha_0 + \alpha_1 INV_{it} + \alpha_2 LAB_{it} + \alpha_3 AID_{it} + \alpha_4 SAV_{it} + \alpha_5 OPEN_{it} + \alpha_6 M2_{it} + \alpha_7 FDI_{it} + \mu_{it} \quad (5)$$

Where $GDPGR$ is the growth rate of real gross domestic product, INV is the domestic investment as proportion of GDP, LAB is the natural log of labour force (age 15-64 years), AID is the official development aid as a share of GDP, SAV is the domestic saving as share of GDP, $OPEN$ is the openness to trade (total trade divided by the GDP), $M2$ is the broad money supply as share of GDP, FDI is the foreign direct investment as share of GDP and μ_{it} is the error term, while $I = 1 \dots N$ represents the 5 countries that are selected for the study. Data used for this study, 1970 to 2012, was sourced from World Development Indicators (WDI) 2013. In terms of apriori expectation, INV , AID , $OPEN$, SAV , LAB and FDI , $M2$ are expected to have positive impact on output of the economy (i.e. the coefficient of these variables should be greater than zero).

Estimation Technique

In the study, a regional based panel data set was used. The Generalised Method of Moments technique was applied to the equation. This arose from the possibility of endogeneity between economic growth and saving, as alluded to by Loayza et al, (1999). That is an increase in the growth of GDP per capita may lead to increase in saving; also an increase in saving may lead to an increase of growth of GDP per capita. This situation can cause the estimated coefficients with OLS method to be biased. The existence of such causality would result in a correlation

between the control variables and error term, which violates the assumptions of a linear regression model. It is in this case difficult to assess the effect of an individual variable and to isolate its influence on saving. Estimation of such a model would lead to simultaneity bias. However, for robustness of the results, the fixed effects and random effects were equally estimated and compared with the GMM.

Empirical Analysis

The fixed and random effects models were merely estimated for robust check, since we have suspected the possibility of endogeneity. Their results, compared with that of the GMM estimates are grossly less-efficient and therefore not reported. The Durbin (score) (1954) and Wu (1974) - Hausman (1977) endogeneity test were conducted to ascertain the presence of endogeneity. The result presented in Table no. 1 suggested that the variables were endogenous. This necessitates the use of GMM method to estimate our model in order to avoid spurious and biased result. Also contained in Table no. 1 is the Wald test; it showed that the model is meaningful and jointly significant. In addition, the Sargan test statistic confirmed the suitability of the instruments used. Variance Inflation Factor (VIF) was used to detect the existence of multicollinearity, i.e. whether one predictor variable is correlated with the others. The VIF shows how much the variance of the estimated coefficients is being inflated by multicollinearity. The results presented in Table no.1 indicate that data in overall model is adequate for the estimation purpose. It shows that all the VIFs are lower than 10, which implies that there is no correlation between any of the explanatory variables.

All the variables are correctly signed, except foreign aid, that is the hypothesized positive significant linear relationship between economic growth and the repressors in the equation cannot be rejected at the 5% level of significance. Negative significant impact of foreign aid indicates that it reduces the growth of countries in the sub-regions. The negative significant impact of foreign aid and positive significant impact of saving on economic growth in the sub-region is an indicative of the fact that foreign aid does not play the complementary role expected in the countries. The result does not support the proponents that aid has positive impact on the economic growth of the developing

countries (Papenek, 1973, Levy, 1987 and Islam, 1992, Boone 1995, Fayissa and El- Kaissy, 1999).

Table no. 1: Results of Fixed OLS and Second Stage Least Square

Variable	Pooled OLS	Fixed Effects	Random Effects	General Methods of Moment		
	Coefficient	Coefficient	Coefficient	Coefficient	VIF	Toleranc
<i>C</i>	12.0980**	10.8591**	10.7695**	10.5933**	2.3	0.43
<i>INV</i>	0.5053**	0.3134	0.1304**	0.5132**	2.4	0.41
<i>LAB</i>	0.9256	1.0912	1.6506	0.8657	3.1	0.31
<i>AID</i>	-0.1955*	-0.2166	-0.4196*	-0.1715**	2.7	0.37
<i>OPEN</i>	0.0312	0.0091	0.6723	0.0801***	2.2	0.44
<i>SAV</i>	0.0051**	0.6721	0.7837	0.0049**	2.4	0.41
<i>M2</i>	0.0079	0.0071**	0.0187	0.0072	3.0	0.33
<i>FDI</i>	0.0020	0.0162	0.0092	0.0019	2.1	0.47
Adj R-	0.64	45.63	0.62			
Wald				0.71		
F-	81.0					
Hausma	-	9.25	-	-		
LaGrang	-	-	1.92	-		
Durbin				Chi =		
Wu-				F = 5.2112		
Sargan				13.11		

Note: ***, **, * represent 1%, 5% and respectively 10% level of significance

The impact of trade openness on economic growth is also positive and significant at 5% level. This result shows that trade openness allow WAMZ countries to allocate resources efficiently. Financial liberalization (M2) Labour force (LAB) and Foreign Direct Investment (FDI) were insignificant. This implies that their influence on economic growth in WAMZ countries is not effective.

Conclusion and Policy Implications

This study examined the complementary roles of foreign aid and savings on economic growth of WAMZ countries, using data from 1980 through 2012. The model was estimated using both, the panel data analysis and GMM for robustness. Empirical finding showed that while the impact of foreign aid is negative and significant, saving has positive and significant impact on economic growth in the WAMZ countries. Hence, aid does not complementary role of saving in impacting on growth in the WAMZ countries. The only limitation to this study is limiting the number of control variable used to explain economic growth to investment, labour, openness, money supply and FDI, where as other important growth determinants excluded are credit facilities, infrastructure and governance variables. This could be taken up by authors that seek to take it over.

A policy implication of the result is that the countries in the West African Monetary Zone should be wary in soliciting for foreign aid as it would significantly reduce their economic growth. The countries would need to disentangle the channels through which aid matters for productivity and efficiency. Also, WAMZ countries should increase their domestic investment as it would benefit the country's economy, and therefore dependency on foreign investment should remain limited. Arising from the empirical results, a key policy recommendation is that governments of the WAMZ countries should adopt strategies, policies and measures which would raise the absorptive capacity of the economy that can adequately translate savings into investment.

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