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Assessing the economic impacts of foreign aid expenditure in West Africa: An empirical analysis of the effects of aid expenditure on economic growth

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The economic impacts of foreign aid expenditure in developing countries remain a debatable topic in economics. Although extensive research has been conducted on this topic, no theoretical or empirical conclusion has been reached. Empirical studies conducted on this topic mostly suffer from endogeneity problems and failed to capture the effects of armed conflict on the efficiency of aid expenditure. Using Seemingly Unrelated Regression and Instrumental Variable technique to address problems of endogeneity, this paper assesses the effects of aid expenditure on economic growth in West Africa while controlling for institutional quality and armed conflict. Data was obtained for the period 1985-2019. The study finds aid expenditures to have positive and significant effect on economic growth while conflict retards growth and undermines aid efficiency in West Africa. Institutional quality matters for economic growth as the empirical estimations show strong institutions enhance the efficiency of aid expenditure and spur growth in West Africa.

Key words: Foreign aid expenditure, economic growth, institutional quality, conflict, West Africa.

INTRODUCTION

Foreign aid is considered as a critical capital to close the savings and investment gap and promote economic growth in low-income countries, especially in sub-Saharan Africa. By so doing, foreign aid plays an essential role by complementing domestic revenue and increasing the investment and capital needed for growth in poor countries. Foreign aid therefore becomes an essential external capital that is expected to substantially contribute to economic recovery and growth in low-income countries.

The Organization for Economic Cooperation and Development (OECD) defines official development assistance (ODA) as technical aid, official grants, or loans having flexible terms, with a grant element of at least 25% aim at enhancing economic development (OECD, 2022). The ODA definition excludes grants, loans and credits for military purposes.

The Development Assistance Committee (DAC) has been using ODA since 1969 as its standard for foreign aid.

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The lack of economic development despite the release of foreign aid to developing countries motivated a substantial amount of empirical research seeking to assess the relationship between foreign aid and domestic savings. This group of studies found that the relationship between foreign aid and domestic savings in less developed countries is not as straight-forward as had been previously reported. Despite efforts made to address this issue from a range of different directions, no consensus was reached as these studies led to conflicting results. Recent studies also report inconclusive results, where some findings suggest that foreign aid has an impact on economic growth while others do not. Moyo (2009) asserts that while development aid has risen in Africa, real per capita income has been on the decline.

However, the debates on the effectiveness of aid expenditure, that is, whether aid actually promotes economic growth, remains unsettled (Nissanke, 2013; Rajan, 2005). Interests in the aid and economic growth debate have grown as huge amount of aid to underdeveloped countries have been recommended as a mechanism for reducing poverty and spurring economic growth (Minoiu and Reddy, 2009; Sachs et al., 2004). The debate has also been heightened by results from cross-country studies which have provided mixed outcomes on the effect of aid on economic development (Trinh, 2014). Yet, others have argued that the provision of foreign aid does not stimulate or contribute to economic growth of poor countries. Easterly (2007) maintained that foreign aid has been largely ineffective in promoting growth in poor countries. Still, others argued that aid contributes to economic growth but only under specific circumstances such as good macroeconomic policies and good governance (Burnside and Dollar, 2000).

The amount of foreign aid provided to West Africa has increased significantly in recent years. The OECD noted that ODA received as a percentage of government expenditure amounted to 31% in Cote d' Ivoire, 38% in Ghana, 73% in Gambia, 80% in Senegal, 91% in Guinea, 150% in Sierra Leone, 221% in Guinea Bissau, and 771% in Liberia (OECD, 2008). Despite the massive aid expenditure in West Africa, recent data from the World Development Indicators shows that real GDP growth in West Africa is declining. Between 2015 and 2019, real GDP growth rate in West Africa plummeted from 2.17% in 2010 to 0.82% in 2019 whilst net aid received increase from US\$71 Billion in 2010 to US\$80.8 Billion in 2019. This trend is likely to continue as the recent global economic shocks occasioned by the Covid-19 is having significantly adverse effects on the economies of West Africa (Figure 1).

To date, there is no research that critically examines the growth impacts of aid expenditure in West Africa, and knowledge in this area is very important for development planning and financing. Therefore, this research fills the gap in the scholarly literature on aid expenditure and economic development by examining the relationship

between aid expenditure and economic growth in West Africa taking into consideration the effects of armed conflict and institutional quality on the effectiveness of aid expenditure.

LITERATURE REVIEW

Review of the theoretical literature

Several theoretical predictions have surfaced in the aid-economic growth literature which tends to explain the relationship between aid expenditure and growth. A review of the key theoretical arguments is provided.

The savings and investment gap

The savings and investment gap theory argues that foreign aid is important to close the resource and financing gap created by low savings in poor countries so as to facilitate the movement of people out of poverty (Sachs, 2005). Proponents believed that foreign aid would supplement the domestic savings in the less developing countries and lead to more capital formation and investment that produces economic growth. Friedman (1958) was the first economist who predicted that 'new aid programs would not lead to economic growth'. The argument of the gap models that foreign aid results to an increase in saving was later rejected by Griffin and Enos (1970).

Foreign exchange earning-expenditure gap approach

Mckinnon (1964) and Chenery and Strout (1966) averred that aid is likely to have a substantial positive effect on growth of poor countries if it used for the purchase of goods and services produced internationally and which are essential for economic growth. This is very important as the economies of underdeveloped countries are unable to operate at the optimum level due to the lack of essential goods and services and the insufficiency of foreign exchange reserves to finance the importation of these goods and services. Additionally, underdeveloped countries lack the capacity to improve foreign exchange income due to a decline in the trade of raw materials and an inelastic domestic supply condition. In order to attain sustainable growth, Prebisch (1964) argued for the transition of underdeveloped countries from primary commodity production to import substitution with the help of foreign aid.

Capital absorptive capacity approach

Capital absorptive capacity is considered as limitations to the amount of capital that can be used to generate returns.

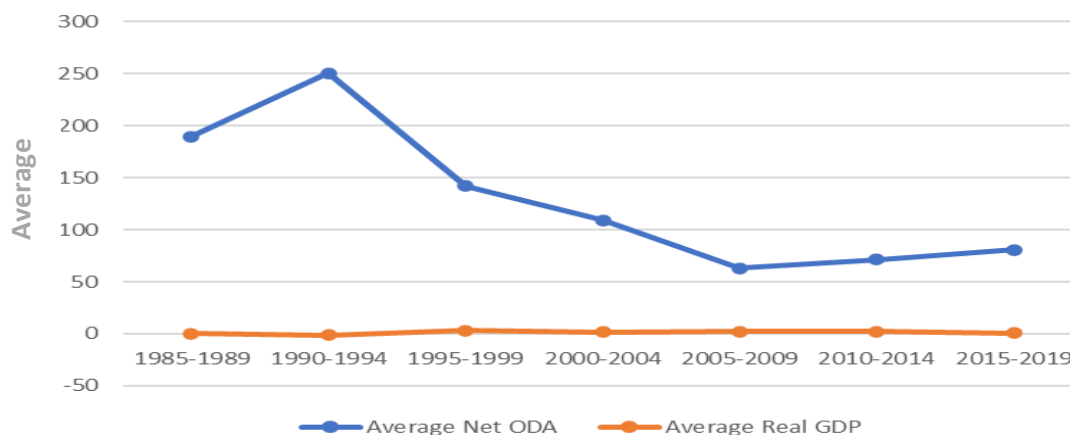


Figure 1. West Africa's average aid and real GDP growth rate (1985-2019).
Source: Author's construction based on aid and GDP data obtained

It has been argued that low-income countries have limited capital absorptive capacity which undermine the efficient utilization of resources. However, with the help of foreign aid, specifically targeted towards programs such as skills development, human capital formation, establishment of technical institutions and training of managerial and technical personnel, underdeveloped countries can enhance their growth rate provided other conditions are appropriate. Chenery and Strout (1966) believed that developing countries have a shortage of technological abilities and managerial skills useful for producing essential goods and services. Hence, foreign technical aid is required to reduce this insufficiency (Burke and Ahmadi-Esfahani, 2006).

Fiscal deficit approach

Developing countries have mostly faced difficulties in raising the needed revenue to meet the demands of the economy. In most developing countries, revenue generation constraints undermine the provision of essential services and hence, economic growth. The increasing expenditure pressures on governments in developing countries amidst inadequate revenue generation presents a critical development challenge for poor countries.

In order to address the aforementioned gap, foreign aid has been considered an important capital injection capable of closing the fiscal gap in developing countries. The three-gap model was added to the literature which contend that developing countries also lack an efficient source of revenue which further undermines the expenditure capability of developing countries (Bacha, 1990; Taylor, 1990). This weakness was considered as fiscal deficit by Bacha (1990) and Taylor (1990) who believed that foreign aid is an important tool for supporting poor countries by providing capital that closes the fiscal gap and enabling

developing countries to invest in productive activities.

Survey of the empirical literature on aid and economic growth

The empirical literature on the relationship between aid expenditure and economic growth revealed mixed and inconclusive findings. Summary of the key studies is presented here.

Research conducted in the 1950's analyzed the context of the two-gap model of aid. The studies generally concluded that foreign aid contributed positively to economic growth. A number of subsequent studies confirmed this result in a variety of contexts. Building on earlier work, Chenery and Shout (1966) also reported that foreign increases economic development.

Levy (1988), followed by Gomanee et al. (2005) and Ekanayake and Chatrna (2010), presented evidence that foreign aid has contributed positively to growth in sub-Saharan African countries through the channel of funding public investment. Rostow (1990) concluded that foreign aid is a recipe for development in developing countries and argued that developed countries should provide aid to poor countries in order to improve the economic conditions of recipients. Burnside and Dollar (2000) used a standard cross-country panel regression and reported that foreign aid increases growth in an improved macro policy environment.

Clemens et al. (2004) undertook a study that assessed the effects of aid allocated to support the budget and balance of payments commitments, infrastructure development, agricultural development and private sector growth. The researchers believed that foreign aid allocated to the aforementioned areas will positively affect growth in the short-run while aid targeting improvement in democracy, environment, health and education will have

long-term effect on growth. Similarly, Hatemi and Irandoust (2005) investigated the relationship between aid and growth among the six major recipients of aid from Sweden from 1974 to 1996 and concluded that foreign aid positively contributed to the economic growth experienced by those countries.

Karras (2006) investigated the relationship between foreign aid and per capita growth. The researcher used annual data from 1960 to 1997 for a sample of 71 aid recipients. The author concluded foreign aid has positive and significant effect on growth. Similar research conducted by Gomanee et al. (2005) using data from a sample of 25 sub-Saharan countries covering the period 1970 to 1997 found that foreign aid has a significant positive effect on development. The researchers further identified investment as the most significant growth-enhancing transmission mechanism.

Andrews (2009) recognized the need for foreign aid flow to developing countries. He realized that the huge budget deficits, import-export gap and compounding investment problems in poor countries have ignited the flow of foreign aid from developed countries to poor countries. However, the researcher found evidence which suggest that despite the large amount of aid received by African countries, their economic conditions remain the same (Andrews, 2009).

Using cointegration and error correction mechanism, Bhattarai (2009) investigated the correlation between aid and per capital real GDP in Nepal during the period 1983-2002. The research included policy variables including macroeconomic stability, financial sector development and openness in an extended model. The results show that foreign aid has a positive and statistically significant effect on per real GDP in the long-run. More importantly, aid effectiveness improves in good policy environment. In support of Rostow's argument, Tadesse (2011) contended that foreign aid is essential because of its potential to finance investment gaps and its ability to enhance economic development in poor countries.

Clemens et al. (2012) analyzed the aid data taking into consideration time effects of aid. The research shows that increases in aid are associated with rise in investment and growth. The result indicates that aid results to some level of growth in poor economies, although the magnitude of the relationship is small, differs greatly across countries and reduces at high levels of aid.

Other studies on the aid expenditure and growth nexus found negative relationship. Hayter (1971) viewed foreign aid as a form of modern imperialism that does not contribute to growth. Hayter (1971) argued that the intended benefits of foreign assistance may not be achieved due to damaging consequences of aid.

Boone (1996) reinvigorated the aid effectiveness debate in the mid 1990's. He used a panel of 91 developing countries covering the period 1971 to 1990 to investigate the effect of foreign aid on investment, consumption, and measures of well-being in less developed countries and concluded that foreign aid leads to increase in government

consumption rather than increasing investment or growth. Brautigam and Knack (2004) reported that foreign aid may actually increase corrupt activities in the recipient countries because of the presence of more resources for the interested people to fight over. Kasper (2006) argued that despite receiving over US\$1 trillion in aid over the past 50 years, it has not produced any significant impact on the economic growth of sub-Saharan countries. The author attributes the poor performance of aid in sub-Saharan countries to corruption which has hindered growth in the most aid-recipient countries in sub-Sahara Africa.

In an attempt to identify reasons why the literature had been so inconclusive, Doucouliagos and Paldam (2006) averred that much of the differences between studies are as a result of data and specification differences. Kourtellos et al. (2007) and Alvi et al. (2008) argued that the impact of foreign aid on growth differ among previous studies due to existing endogeneity resulting from the exclusion of important control variables. They also argued that the relationship between aid and growth is non-linear. In other studies, Headey (2007) contended that bilateral aid did not have an impact on growth during the Cold War period because such aid served the geopolitical interests of donors. The study used a dataset of 56 countries covering the period 1970 to 2001 and found that multilateral aid flows were more effective than geo-politically driven bilateral aid flows during the Cold War period. On the other hand, Headey (2007) found that bilateral aid has a positive and large growth effect in the post-Cold War era.

Rajan and Subramanian (2007) examined the effects of aid on growth in cross-sectional and panel data and found little robust evidence of the relationship between aid inflows into a country and its economic growth. The research also found no evidence that aid works better in better policy or geographical environments, or that certain forms of aid work better than others. In another study, Rajan and Subramanian (2008) provided evidence that total aid is ineffective and does not promote growth.

An examination of the effect of aid on six of the poorest African countries was conducted by Mallik (2008). Using co-integration methods, the results showed that there was a negative relationship between foreign aid and economic growth in the long run for most of the countries, while there was no significant effect of aid on growth in the short-run.

Ekanayake and Chatrna (2010) found mixed effects of foreign aid on economic development in their study of 85 developing countries, covering Asia, Africa, Latin America and the Caribbean over the period spanning 1980 to 2007. They found foreign aid positively impacted sub-Saharan countries but negatively affected other regions of the world.

Nissanke (2013) examined the multilateral aid allocation mechanism and system. The researcher examined the debt sustainability framework and analysis of the World Bank and the International Monetary Fund which has become the leading analytical tool for determining the right mix of aid allocation to low-income countries. The

researcher identified several problems with the debt sustainability framework and analysis including the inability of the framework to consider country-specific structural handicaps as a reflection of the characteristics of low-income countries, the lack of objectivity in the measurement of country policy and institutional environment, the inability of the framework to capture the dynamic interactions and relationships between macroeconomic variables and all sectors of an economy. These problems negatively affect aid allocation decisions for low-income countries as well as the efficacy of aid in low-income countries.

Phiri (2017) investigated the impact of aid on the economic outputs of 12 least developed countries in sub-Saharan Africa over a period of 20 years. The researcher used a fixed effects instrumental variable approach and the results imply that aid has a statistically insignificant negative growth effect. The researcher concluded that aid is ineffective in promoting growth, perhaps due to misallocation of aid or inefficient use.

METHODOLOGY

In order to adequately examine the aid-economic growth relationship, the sources of growth need to be identified. For the purposes of this research, growth is measured by increase in GDP. GDP per capita (adjusted for PPP) is considered as the best indicator of economic growth as it has a critical role to play in human development. It is expected that once the income level of residents of a country is high, there is a strong likelihood that the standards of living is also higher (Abouraia, 2014). Higher standards of living increase the chances of residents to afford adequate health care, food and education. Anand and Ravallion (1993) found positive correlations between GDP and human development indices. The impact of GDP growth can be experienced through a decrease in poverty rates and an increase in expenditure thereby stimulating growth and development.

The appropriate function relevant for identifying growth factors is the production function. Hence, this paper uses the Cobb-Douglas aggregate function to identify key growth determinants best suited for the econometric model. The aggregate Cobb-Douglas function can be represented as follows:

$$Y = A K^\alpha H^\beta = A K^\alpha (h \times L)^\beta$$

where Y is Gross Domestic Product (GDP); A is total factor productivity (TFP); K is fixed capital inputs; H represents human capital which is the product of labor force (L) and human capital index (h); α and β represent national income share accrued to fixed capital and human capital, respectively.

An analysis of the data and literature led to the selection of the following key growth determinants, population, trade openness represented by current balance, international trade and institutional quality to be included in the model. Increase in population is expected to slow growth according to the Solow-Growth model while improvements in trade and the current balance are good for long-term economic growth. Effective institutions are expected to improve the efficiency of aid expenditure resulting to increase in economic growth. Studies show that aid is effective in enhancing growth in good policy environment as compared to environments with ineffective policies and/or institutions (Burnside and Dollar, 2000; Collier and Dollar, 2001, 2002).

Estimation model and technique

The econometric analysis evaluates both short and long-term determinants of economic development and is based on several theories including the Harrod-Domar, neoclassical and endogenous growth theories. Hence, this paper uses the following formula to facilitate the examination of the impacts of aid expenditure on economic growth in West Africa:

$$GDP = \beta_0 + \beta_1 ODA + \beta_2 P + \beta_3 TRD + \beta_2 CB + \beta_3 INS + \beta_4 CONFLICT + \mu$$

where GDP is real gross domestic product growth rate serving as a proxy for economic growth; ODA represents foreign aid and denotes the ratio of ODA to GDP; P represents population growth rate; TRD represents trade and is measured as a share of GDP; CB represents current balance and is measured as a share of GDP; INS is institutional quality; and CONFLICT is a variable that capture the impacts of armed conflict and is of particular relevance to the context of the research. CONFLICT undertakes the value of 1 during periods of armed conflict and 0 during periods of non-armed conflict. Considering that several countries in West Africa experienced armed conflict during the research period, and its likely influence on the effects of aid expenditure on economic growth, it is of utmost importance to include CONFLICT as an explanatory variable in the model. Lastly, μ represents the error term of the model, and the period t is applicable to all variables although not explicitly written in the model.

The inclusion of ODA and investment in the econometric model can be problematic and can cause biasness in the results. The formula includes ODA and excludes investment as there could be a problem of double counting given that some elements of investments might be financed by foreign aid (Feeny, 2005). Although other researchers may choose to use ODA and investment in the model, doing such will result in model misspecification and undermine the very purpose of the research (Fenny, 2005; Gomanee et al., 2002).

With the use of time-series data across several countries and to eliminate time-persistent cross-section information, the Seemingly Unrelated Regression (SUR) approach was used. The SUR model proposed by Zellner (1962), is a collection of two or more regression equations which can be analysed under a broad range of conditions. By jointly analysing a set of regression equations, the SUR has the potential to provide more precise estimates and predictions (Zellner, 2006). An essential feature of the SUR model is that disturbances are assumed independent. Barro and Lee (2005) argue that SUR technique is useful for time-series data analysis than General Moment Method (GMM) because fixed-effect and first-differenced GMM estimates eliminate time-persistent cross-section information.

The first stage of the model estimates the relationship between growth and aid taking into consideration population growth rate, trade and current balance [$GDP = \beta_0 + \beta_1 ODA + \beta_2 P + \beta_3 TRD + \beta_2 CB + \mu$]. To capture the effects of institutions on aid effectiveness and growth, the second stage of the model include institutional quality as an explanatory variable [$GDP = \beta_0 + \beta_1 ODA + \beta_2 P + \beta_3 TRD + \beta_2 CB + \beta_3 INS + \mu$]. Taking into account the potential influence of armed conflict on growth and its relevance to the West African region, the third stage of the model captures conflict as an independent variable [$GDP = \beta_0 + \beta_1 ODA + \beta_2 P + \beta_3 TRD + \beta_2 CB + \beta_4 CONFLICT + \mu$]. Lastly, the model captures aid effectiveness taking into account the combined effects of institutional quality and conflict [$GDP = \beta_0 + \beta_1 ODA + \beta_2 P + \beta_3 TRD + \beta_2 CB + \beta_3 INS + \beta_4 CONFLICT + \mu$]. Using this approach, precise estimates of long-run relationship can be obtained.

In order to check for potential endogeneity between the foreign aid and other explanatory variables in the model, this paper uses instrumental variables regression. This method has been recognized in the econometric literature as a useful approach for handling endogeneity issues while providing precise estimates for informed

policy analysis.

Data description

The current research employed real GDP per capita to represent economic growth. ODA is used in this paper to represent foreign aid. Additional data include population growth rate, trade, and current balance and conflict. Yearly data for the aforementioned variables were obtained from 1985 to 2019. Data on institutional quality was obtained for the period covering 1996-2019.

Real GDP per capita growth data were obtained from the Maddison Project Database (2018) developed at the University of Groningen in the Netherlands, while data on ODA are from the OECD database. Data on population growth rate (%), trade (% of GDP), and current balance (% of GDP), were obtained from the World Development Indicators Database. Given the importance of institutional quality to growth and aid effectiveness, data on institutional quality was obtained. This paper uses the indicators of institutional quality constructed by Kaufman et al. (2009). Unlike other variables, data on institutional quality covered 1996-2019.

Considering that conflict has effect on growth, the model captures data on armed conflicts, which include both internal and external armed conflicts experienced by the different countries in the West African region. The data on armed conflicts will be obtained from the Uppsala Conflict Data Program (UCDP). The data is the latest version and covered the period 1985-2019, covering the same period for which data in this model will be captured. The dataset is further described in Gleditsch et al. (2002).

EMPIRICAL ANALYSIS AND RESULTS

This paper employed SUR to estimate the model. This approach analyses the relationship between multiple variables and produce precise estimates and predictions. SUR is a recognised approach for analysing time-series data because it eliminates time-persistent cross-section information (Barro and Lee, 2005).

Estimations using SUR

In Table 1, the results from several empirical estimations using SUR on the effects of foreign aid on economic growth in West Africa are outlined. The table has 4 columns, each containing results from the different estimation stages of the model.

The first column captures the effect of foreign aid expenditure on growth in West Africa while controlling for the growth effects of population and trade openness between 1985 and 2019. During the period 1985-2019, the estimation shows that an increase in aid expenditures result to 0.33% increase in real GDP while population growth has negative and significant effect on per capita growth. During the same period, current balance and trade have positive growth effect, accounting for 26.4 and 17.5% increase in growth, respectively.

To assess the efficiency of aid expenditure on growth, institutional quality was included in the model and the results of the estimations are outlined in the second column of the table. With the introduction of institutional

quality in the model, the positive growth effects of aid expenditures, current balance and trade increased while the negative growth effect of population reduced. Specifically, the estimations show that an increase in institutional quality results to 89.4% increase in per capital growth in West Africa. This result confirms the conclusions that aid expenditure can be effective in expanding growth in good policy environments (Burnside and Dollar, 2000; Collier and Dollar, 2001, 2002). This finding also confirms the results of earlier studies (Gray and Kaufman, 1998; UNDP, 2011; WEF, 2008) which find that high corrupt practices undermine economic growth and development.

Taking into account the effect of armed conflict on growth, the third column captures the effect of aid expenditures on growth in West Africa between 1985 and 2019. The estimations show that conflict has negative and significant effect on growth and the result confirms earlier theoretical predictions that conflict undermines growth. Aid expenditures, current balance and trade have positive growth effects while population growth has negative and significant growth effect during the same period. The results further confirm the findings of Collier et al. (2003) who find civil wars to have negative consequences on economic growth.

The last column captures the combined effects of institutional quality and conflict on aid expenditure and economic growth in West Africa while taking into account the growth effects of population growth and trade openness. The estimations reveal that the positive growth effects of institutional quality reduced to 84.9% while the negative growth effects of conflict also reduced to -195% and becomes insignificant. The growth effects of aid expenditures, current balance and trade remain positive and significant with a slight increase in the positive impact of aid expenditure. Notably, population growth effects remain negative, significant and high accounting for -263% reduction in growth.

Instrumental variable regression and testing for endogeneity

The current model includes institutional quality as a variable and which is likely to have direct impact on the efficiency of aid expenditure on economic growth. Burnside and Dollar (2000) argue that aid is more effective in enhancing economic growth in good policy environments. This paper uses instrumental variable regression to test for endogeneity between aid and institutional quality.

Using instrumental variable regression, Table 2 shows the results of aid expenditure on growth in West Africa between 1985 and 2019 treating institutional quality as an instrumental variable and aid as an exogenous variable. The estimates indicate that an increase in aid expenditures results to -3.62% decline in growth while an increase in current balance and trade leads to 49.87 and 26.28% increase in growth, respectively. The estimates further

Table 1. Effects of foreign aid expenditure on economic growth-SUR estimations.

Variable	Column 1	Column 2	Column 3	Column 4
Number of observations	480	112	80	80
Number of countries	15	15	15	15

	SUR	P-value	SUR with INS	P-value	SUR with conflict	P-value	SUR With Conflict and INS	P-value
ODA	0.33***	0.00	0.36***	0.00	0.33***	0.00	0.37***	0.00
P	-287***	0.00	-249***	0.00	-306***	0.00	-263***	0.00
CB	26.4***	0.00	26.7***	0.00	26.7***	0.00	26.9***	0.00
TRD	17.5***	0.00	18.5***	0.00	16.9***	0.00	18.1***	0.00
INS	-	-	89.4***	0.00	-	-	84.9***	0.00
CONFLICT	-	-	-	-	-327**	0.02	-195	0.15

SUR-Seemingly Unrelated Regression; Real GDP Per Capita is the dependent variable; *** Significant at 1% level; ** Significant at 5% level; *Significant at 10% level.

Table 2. Instrumental variable regression and tests of endogeneity.

Number of observations	479
Number of countries	15

Variable	IV regression value	P-value
ODA	-3.62	0.070
P	-212	0.123
CB	49.87	0.001
TRD	26.28	0.000
CONFLICT	-147	0.680
Durbin (score) chi2(1)	25.23	0.0000
Wu-Hausman F(1,472)	26.25	0.0000

show that population growth and conflict have negative but insignificant effect on growth in West Africa during the period 1985-2019.

In order to conduct the tests of endogeneity, the null and alternative hypothesis were created. The null hypothesis states that foreign aid is exogenous and is represented by the equation: $H_0: ODA=EXO$; while the alternative hypothesis states foreign aid is not an exogenous variable and is represented by the equation: $H_1: ODA \neq EXO$. As shown in the table, both Durbin and Wu-Hausman statistics have very smaller p-values; hence, the null hypothesis that foreign aid is exogenous is rejected. Therefore, the econometric model was right in treating foreign aid as an endogenous variable.

DISCUSSION

The empirical estimations reveal that aid expenditure has correlation with economic growth. The estimations indicate that aid expenditure has positive and significant effect on

per capita growth across West African countries between 1985 and 2019. Further robustness checks using instrumental variable technique reject the null hypothesis that aid is an exogenous variable thus validating the inclusion of foreign aid and institutional quality in the econometric model. The finding confirms earlier studies (Andrews, 2009; Clemens et al., 2012; Ekanayake and Chatrna, 2010; Tadesse, 2011) which found aid expenditure to have positive growth effect.

Institutional quality is regarded in the literature as an essential element which affects the efficiency of aid expenditure on growth. The estimations confirm that institutional quality is relevant for economic growth. Institutional quality has positive and significant effect on real GDP growth and the result is consistent across all estimations. Furthermore, robustness checks were conducted which show low p-values of the Durbin and Wu-Hausman statistics thus indicating that the inclusion of institutional quality in the model does not bias the estimates and results. The result is consistent with earlier studies that show strong institutional quality positively

contributes to economic growth through improving the efficiency of aid expenditure (Adkins et al., 2002; Cooray, 2009; Grogan and Moers, 2001; Valeriani and Peluso, 2011). The estimation validates previously held views and studies that corruption and lack of accountability undermine economic growth and development (Mauro, 1995; Olken, 2009; Olken and Pande, 2011; Sequeira and Djankov, 2010).

The estimations show that conflict has negative and significant effect on economic growth. The estimations further indicate that conflict undermines the efficiency of aid expenditure on growth. The finding is consistent with earlier research works (Collier et al., 2003; Glitsch et al., 2002) which found armed conflicts to have negative effects on economic growth. Armed conflicts create significant negative economic shocks which undermine productive economic activities and hence, economic growth. Similar to conflict, the findings reveal that population growth has negative and significant effect on per capita growth in West Africa and validates the theoretical predictions of the Solow-Growth model.

The estimations reveal that trade openness and international trade have significant and positive growth effects. The result is consistent across all estimations regardless of the inclusion of institutional quality and conflict in the model. Trade openness and enhanced international trade are expected to enhance the efficiency of aid expenditure through reducing fiscal gaps and creating jobs in the economy. Furthermore, trade openness and international trade are expected to reduce the foreign exchange gaps and ensure the availability of essential goods for productive economic activities.

CONFLICT OF INTERESTS

The author has not declared any conflict of interests.

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