International Business Research; Vol. 16, No. 1; 2023
ISSN 1913-9004 E-ISSN 1913-9012
Published by Canadian Center of Science and Education

Impact of Bilateral and Multilateral Aid on Economic Growth in Low and Middle-Income Sub Sahara African Countries: Mediating Role of Institutional Quality

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Received: August 11, 2022 Accepted: December 6, 2022 Online Published: December 21, 2022

doi:10.5539/ibr.v16n1p44 URL: https://doi.org/10.5539/ibr.v16n1p44

Abstract

The purpose of the study was to compare the impact of bilateral and multilateral aid on economic growth in middle and low-income Sub Sahara Africa (SSA) countries, and determine whether the impact is contingent on institutional quality. The study relied on panel data from 28 SSA countries from 1999 – 2015. Countries were grouped into middle and low-income countries following the World Bank classification, and a dynamic model was specified and estimated for both categories of countries using the technique of system GMM. After accounting for the differences in levels of economic development, the results showed that only multilateral aid had a positive and significant effect on economic growth in both middle and low-income countries, and that the impact is contingent on existence of good quality institutions. The study therefore recommends that donors should focus more on advancing aid through multilateral channels, and that governments of SSA countries—both middle and low-income—should focus on strengthening the quality of their institutions if they are to maximize value from multilateral aid.

Keywords: bilateral aid, multilateral aid, economic growth, Sub Sahara Africa

1. Introduction

The impact of foreign aid on economic growth remains a subject of unending empirical debate within the development discourse. Some recent researchers contend that a positive and significant relationship exists between foreign and economic growth (Abate, 2022; Golder et al., 2021; Dash, 2021; Galiani et al., 2017). Other recent researchers conclude that a negative and significant relationships exists between foreign aid and economic growth ((Chirwa & Odhiambo, 2016; Albiman, 2016). There are also those who find no significant relationship between foreign aid and economic growth (Tang & Bundhoo, 2017). The mixed results may be explained by the fact most estimation models employ aggregate aid as a predictor, yet such a variable construction does not specify which form of foreign aid impacts economic growth. For a more meaningful interpretation, there is need to disaggregate aid and establish how disaggregated aid components affect economic growth.

One such form of aid disaggregation would be based on bilateral and multilateral aid. The former refers to assistance given by one government directly to the government of another country, while the latter refers to assistance given by governments to international organizations such the World Bank, International Monetary Fund (IMF) and the United Nations. Disaggregating aid in terms of bilateral and multilateral aid and determining its impact on economic growth is important in light of the recent donor interest in in knowing which channel of aid delivery produces better results in terms of achieving development goals (Biscaye et al., 2017). In addition, the development discourse has been awash counter arguments on the relative effectiveness of bilateral and multilateral aid, which can only be put to rest through testing the notions attributed to the aid delivery channels. For instance, supporters of bilateral aid argue that it is a more effective channel of aid delivery especially where more accountability is required, and there exists institutional compatibility between donor countries and recipients (Findley et al., 2017; Dreher et al., 2011).

However, opponents of bilateral aid contend that it is a less effective channel of aid delivery since aid allocation decisions tend to favor more the political and strategic interest of donors at the expense of recipients, and it tends to be prone to high administrative staff and processing costs (Rommel & Schaudt, 2020; Findley et al., 2017).

On the other hand, proponents of multilateral aid argue that it is a more effective channel of aid delivery since it is less prone to fragmentation, comes with the much needed expertize, and focusses more on initiatives that lead to tangible transformation in recipient countries (Addison et al., 2015; Nunnenkamp et al., 2017; Gulrajani, 2016). However, opponents of multilateral aid argue that it is more prone to less transparency and accountability and that it involves bureaucratic barriers which tend to lengthen time before aid is actually delivered to recipient countries (Gulrajani, 2016). Such counterarguments can only be put to rest through further empirical studies.

Since the 1960s, Sub-Sahara African countries have been the biggest net recipients of aid relative to other aid recipient regions for the purpose of promoting growth and development. For instance, in 1996, SSA received aid amounting to USD 60 billion compared to USD 8 billion received by East Asia and Pacific; and by 2015, aid received by SSA had grown to USD 152 billion compared to USD 8.5 billion received by East Asia and Pacific (World Bank Development Indicators Database, 2017). However, economic growth rate from 1995 to 2015 averaged 4.48 for SSA compared to 7.42 for East Asia and Pacific (World Bank Development Indicators Database, 2017). Yet, there remains a grey area in empirical literature on the impact of bilateral aid and multilateral aid on economic growth in SSA countries. Besides, research is abound indicating that institutional quality is an important factor of aid effectiveness particularly in developing countries (Kabir, 2020; Dietrich, 2016; Arvin, 1999). However, it remains empirically unknown whether the impact of bilateral and multilateral aid on economic growth in SSA countries is contingent on institutional quality.

Moreover, according to Biscaye et al. (2017) the effectiveness of aid varies across countries depending on the level of development. However, empirical research testing this notion remains limited. Accordingly, this study sought to expand the aid-growth discussion by grouping SSA countries according to the level of development following the World Bank (2017) classification. In this classification, SSA countries are grouped into middle-income and low-income countries. The former category includes countries such as: Ivory Coast, Congo, Cameroon, Mauritius, Kenya, Namibia, Ghana, Nigeria, Swaziland, South Africa, Sudan and Gabon. While the latter category includes countries such as: Gambia, Benin, Madagascar, Rwnada, Malawi, Burkina Faso, Guinea, Benin, Mozambique, Uganda, Senegal, Tanzania, Mali, Togo, Chad, and Niger. Accordingly, the overall objective of the study was to compare the impact of bilateral and multilateral aid on economic growth in middle and low-income SSA countries, and to determine whether the impact is contingent on institutional quality.

2. Methods and Materials

2.1 Theoretical Framework

The study employed Solow's model to examine the impact of bilateral and multilateral aid on economic growth in middle and low-income SSA countries, and ascertain whether it is contingent on institutional quality. However, the model was modified to cater for elements of bilateral and multilateral aid. According to Solow (1956), output (Y) depends on labor (L) and capital stock (K), that is:

$$Y = f(K, L) \quad (1)$$

Where Y is aggregate output, K is capital stock and L is labor force stock. Equation (1) is assumed to be continuous and twice differentiable, with positive but diminishing marginal products. That is:

$$\frac{\partial Y}{\partial K} > 0, \frac{\partial^2 Y}{\partial K^2} < 0 \; and \; \frac{\partial Y}{\partial L} > 0, \frac{\partial^2 Y}{\partial L^2} < 0$$

It is also assumed that the Inada (1963) conditions are satisfied, which means that:

$$lim_{K \to 0} \frac{\partial Y}{\partial K} = \infty, lim_{K \to \infty} \frac{\partial Y}{\partial K} = 0 \; and \; lim_{L \to 0} \frac{\partial Y}{\partial L} = \infty, lim_{L \to \infty} \frac{\partial Y}{\partial L} = 0$$

As was in the case of Gitaru (2015), equation 1 is augmented and foreign aid is introduced as the other input, giving rise to a new production function stated as:

$$Y = f(K, L, A) \quad (2)$$

Where A is stock of foreign aid and the other terms are as defined under equation (1). Transforming equation (2) into a Cobb Douglas production function yields equation (3) as follows:

$$Y = K^{\propto} L^{\theta} A^{\beta} \quad (3)$$

By natural logging equation (3), equation (4) is generated as follows:

$$InY = \propto InK + \theta InL + \beta InA \quad (4)$$

Differentiating equation (4) with respect to time yields equation (5) as follows:

$$\frac{1}{Y}\frac{\partial Y}{\partial t} = \frac{\propto}{K}\frac{\partial K}{\partial t} + \frac{\theta}{L}\frac{\partial L}{\partial t} + \frac{\beta}{A}\frac{\partial A}{\partial t} \quad (5)$$

Where $\frac{1}{Y}\frac{\partial Y}{\partial t}$ represents the growth rate of output, $\frac{\propto}{K}\frac{\partial K}{\partial t}$ represents growth rate of capital stock, $\frac{\theta}{L}\frac{\partial L}{\partial t}$ represents the growth rate of labor force, and $\frac{\beta}{A}\frac{\partial A}{\partial t}$ represents the growth rate of foreign aid, while $\alpha, \theta, and\ \beta$ represent elasticities with respect to capital stock, labor force, and foreign aid respectively. Equation (5) implies that the growth rate of output is a function of growth rates in capital stock, labor force and foreign aid stock. Equation (5) can be re-written as follows:

$$g_Y = g_K, g_L, g_A \quad (6)$$

$$\text{Where } g_Y = \frac{1}{Y}\frac{\partial Y}{\partial t}, g_K = \frac{\propto}{K}\frac{\partial K}{\partial t}, g_L = \frac{\theta}{L}\frac{\partial L}{\partial t}, and\ g_A = \frac{\beta}{A}\frac{\partial A}{\partial t}$$

Consistent with other studies, foreign aid is defined as a percentage of GDP as opposed to growth of foreign aid. Furthermore, as an innovation, foreign aid is disaggregated into bilateral and multilateral aid, implying that equation (6) is transformed as follows:

$$g_Y = f[g_K, g_L, (BA), (MA)] \quad (7)$$

Where *BA* is denoted as bilateral aid and *MA* is denoted as multilateral aid.

2.2 Empirical Model

The purpose of this study was to examine the impact of bilateral and multilateral aid on economic growth in middle and low-income SSA countries, and determine whether the impact is mediated by institutional quality. It is known from macroeconomic theory that GDP growth depends on a number of factors other than foreign aid such as inflation, capital stock, growth in labor force, trade openness, financial sector development (M2/GDP) and institutional quality among others. Therefore, estimating the impact of bilateral and multilateral aid on economic growth requires one to introduce such control factors in the model. In addition, institutional quality is introduced because it allows one to determine whether this factor mediates the impact of bilateral and multilateral aid. This achieved through interacting the institutional quality with each component of aid—bilateral and multilateral aid. Taking into account the time and geographical scope of the study, the empirical model was thus specified as follows:

$$Y_{it} = \alpha + \beta' X_{it} + \varphi BA_{it} + \delta MA_{it} + \mu_{it} + v_{it} \quad (8)$$

Where *X* represents X represents a set of growth control factors including inflation, capital stock, growth in labor force, trade openness, financial sector development (M2/GDP) and institutional quality; $\propto, \beta, \varphi\ and\ \delta$ are parameters; μ_{it} is the individual specific effect; v_{it} is an idiosyncratic error term that varies between and/or among countries as well as over time. The error term is also assumed to be independently distributed with $E(v_{it}) = 0$.

By letting $Z' = (X\ BA\ MA)$, equation (8) reduces to:

$$Y_{it} = \propto + \theta' Z_{it} + \mu_{it} + v_{it} \quad (9)$$

Where $\theta' = (\beta\ \varphi\ \delta)$ represents a vector of coefficients to be estimated. According to Ram (2004), economic growth is a dynamic process, meaning that economic growth in the previous year can impact economic growth in the current year. Therefore, the empirical model for the study was specified taking into account dynamic characteristics of economic growth. That is,

$$Y_{it} = \alpha + \vartheta Y_{it-1} + \theta' Z_{it} + \mu_{it} \quad (10)$$

Where $\mu_{it} = \mu_{it} + v_{it}$ is the overall error term.

2.3 Variables Definition, Measurement and Expected Signs

Bilateral Aid (BAid): This refers to assistance given by one government directly to the government of another country. It is measured as net bilateral aid inflows from Development Assistance Countries (DAC) and expressed as a percentage of GDP. The coefficient of BAid is expected to be positive since is it supplements countries' savings needed for boosting investment levels, leading to enhanced growth (Dreher & Langlotz, 2020).

Multilateral Aid: This refers to assistance given by governments to international organizations such the World Bank, International Monetary Fund (IMF) and the United Nations. It is calculated as the difference between total aid and net bilateral aid inflows from Development Assistance Countries (DAC), and it is expressed as a percentage of GDP. The coefficient of multilateral aid is also expected to be positive since it augments countries' savings needed to spur investment, leading to enhanced growth (Dreher & Langlotz, 2020).

Capital Stock: This refers to a measure of the country's existing physical stock of assets that are required to spur production. Following previous research, Gross Fixed Capital Formation (GFCF) is used as a proxy for capital stock (Shuaib & Ndidi, 2015). Its coefficient is expected to be positive since increase in capital stock promotes investment, leading to enhanced economic growth (Nweke et al., 2017).

Population growth (POPg): Population growth is used as a proxy for population growth following previous studies **(**Peterson, 2017). The higher the population growth, the higher the labor supply and the bigger the market size for goods and services, all of which are important elements of increasing investments and growth **(**Peterson, 2017). Therefore, the coefficient of population growth is expected to be positive.

Trade Openness (TOPEN): This refers to the ratio of the sum of exports and imports to GDP (Fujii, 2019). Trade openness enhances economic growth because it is a source of new market opportunities for domestic firms, it promotes stronger productivity, and it promotes innovation through competition (Hye et al., 2016; Huchet-Bourdon et al., 2018). Accordingly, the coefficient of trade openness is expected to be positive.

Inflation (INFL): This refers to the measure of the rate of change in consumer price index (Ekanayake & Chatrna, 2010). Its coefficient is expected to be negative since inflation increases the costs of production and thus dampens economic growth (Aydin et al., 2016; Mishchenko et al., 2018).

Financial Sector Development: Money supply (M2)/GDP is used as a proxy of financial sector development following previous research, and it is used as a measure of a country's level of financial deepening. The higher the money supply, the higher the aggregate consumption, and the higher the investment, leading to enhanced investment and this has been verified by a number of previous studies (Ibrahim & Alagidede, 2018; Durusu-Ciftci et al., 2017). Therefore, the coefficient of M2/GDP is expected to be positive.

Institutional Quality (INSTq): This is the measure of the power, consistency and robustness of institutions in each country. The study adopted the definition and measurement of institutional quality advanced by the World Bank, where it includes six indicators including: control of corruption (CoC), rule of law (RoL), regulatory quality (RQ), government effectiveness (GE), political stability (PS), and voice and accountability (V&A). These indicators are measured using an index ranging from -2.5 t0 2.5, where by movements from the former to the latter value represents an improvement in institutional quality. Overall, the higher the institutional quality, the higher the economic growth because good quality institutions create confidence among investors, leading to increased investment, and this is supported by previous studies (Bosma, Sanders, & Stam, 2018; Bjornskov & Foss, 2016). Overall, the coefficient of institutional quality is expected to be positive.

2.4 Data Type and Sources

The study was based on a panel of 28 SSA countries for the period 1996 – 2015. The use of panel data was premised on the advantages it offers over pure time series or cross-sectional data such as containing more information, more variability and more efficiency (Wansbeek & Meijer, 2007). The data were sourced from the 2017 World Bank Development Indicators (WDI) Database.

2.5 Estimation Procedure and Techniques

In the dynamic panel data model specified in equation (10), Y_{it-1} is correlated with μ_{it} by construction. This creates an endogeneity problem that renders OLS, Fixed Effects and Random Effects model estimators biased and inconsistent (Baltagi & Baltagi, 2008). To overcome this problem, researchers are advised by econometrics experts to employ two types of dynamic panel estimators—difference GMM and system GMM (Arellano & Bond, 1991; Arellano & Bover, 1995; Blundell & Bond, 1998). Both estimators appropriately apply where there are few time periods corresponding to many countries, there exists a linear functional relationship, there exists one dynamic left-hand-side variable, there are independent variables that are not strictly exogenous, there exists

fixed individual effects, and there exists heteroskedasticity and autocorrelation within individuals but not across individuals (Arellano & Bond, 1991; Arellano & Bover, 1995). However, the shortcoming attributed to difference GMM is that lagged levels tend to be poor instruments for first differences especially for variables that tend towards a random walk (Arellano & Bond, 1991). This necessitated the use of system GMM. Besides, system GMM is credited for being more efficient compared to difference GMM as long as the instruments are valid and exogenous (Jung & Kwon, 2007), as was the case in this study.

3. Results and Discussion

The results are presented systematically in three different ways. First, is the descriptive statistics. This is followed by correlational analysis, panel unit roots and panel estimates.

3.1 Descriptive Statistics

The empirical model estimated in this study contained predictors such as bilateral aid; multilateral aid; inflation; capital stock; growth in labor force; trade openness; financial sector development; and institutional quality comprised of indicators such control of corruption (CoC), rule of law (RoL), regulatory quality (RQ), government effectiveness (GE), political stability (PS), and voice and accountability (V&A). Table 1 below presents summarized descriptive statistics of economic growth and the selected predictors.

Table 1. Descriptive Statistics of Economic Growth and Selected Predictors

Variables	Obs	Mean	Std. dev.	Minimum	Maximum
GDPg	560	4.769	3.824	-12.67	33.74
GFCF	560	13.31	14.38	0	112.0
POPg	560	2.618	0.775	0.132	7.989
BAid	560	2.532	2.339	-3.408	11.41
MAid	560	5.336	4.428	-3.307	35.77
TOPEN	560	0.710	0.305	0.158	2.0944
INFL	560	7.064	8.976	-8.975	132.8
M2/GDP	560	0.130	0.154	0.004	1.478
CoC	560	-0.595	0.506	-1.523	0.809
GE	560	-0.592	0.514	-1.626	1.049
PS	560	-0.457	0.823	-2.665	1.200
RQ	560	-0.454	0.477	-1.490	1.127
RoL	560	-0.588	0.562	-1.709	1.077
V&A	560	-0.522	0.675	-1.859	1.007

From Table 1 above, GDP growth recorded a mean value of 4.769 and a corresponding standard deviation value of 3.824. Gross fixed capital formation registered a mean value of 13.31 and a corresponding standard deviation of 14.38. Population growth yielded a mean value of 2.618 and a standard deviation of 0.778. Bilateral aid registered a mean value of 2.532 and a corresponding standard deviation of 2.339, while multilateral aid recorded a mean value of 5.336 and a corresponding standard deviation of 4.428. The mean value of trade openness was 0.710 while the standard deviation was 0.305. The mean for inflation was 7.064 while the corresponding standard deviation was 8.976. The mean value attributed to M2/GDP was 0.130 while the corresponding standard deviation was 0.154. All the indicators of institutional quality registered negative values, suggesting existence of poor governance for the countries under consideration.

3.2 Correlational Analysis

Before conducting regression, there is need for first establishing whether any multicollinearity exists among predictors in the model. This is important because existence of multicollinearity among predictors may undermine the statistical significance of predictors. Table 2 below thus presents summarized results of correlation analysis.

Table 2. Correlation Analysis Results

	GDPG	GFCF	POPG	MAID	BAID	OPEN	INF	M2/GDP	COC	GE	PS	RQ	ROL	VOC
GDPG	1													
GFCF	.187*	1												
POPG	.187*	.178*	1											
M AID	.1716*	.104*	.473*	1										
B AID	.2178*	.120*	.445*	.693*	1									
OPEN	-.110*	.072	-.391*	-.292*	-.284*	1								
INF	.067	.126*	-.027	.093*	.086*	-.143*	1							
M2/GDP	-.084*	-.133*	-.541*	-.252*	-.304*	.253*	-.028	1						
COC	-.013	-.070	-.405*	.039	.026	.161*	-.058	.462*	1					
GE	.002	-.083*	-.429*	-.025	-.032	.052	-.010	.544*	.837*	1				
PS	-.066	-.088*	-.249*	.096*	.078	.301*	-.190*	.316*	.626*	.587*	1			
RQ	-.058	-.097*	-.422*	-.044	-.069	.080	-.138*	.539*	.792*	.884*	.615*	1		
ROL	-.040	-.111*	-.390*	.009	-.029	.147*	-.085*	.539*	.818*	.850*	.752*	.851*	1	
VAC	.013	-.088*	-.264*	-.061	.013	.005	-.070	.471*	.651*	.760*	.612*	.758*	.038*	1

From Table 2, the correlation between bilateral aid and growth, multilateral aid and growth, capital stock and growth, population growth and growth, M2/GDP and growth are positive and below 30%. The correlation between trade openness and growth is negative and below 30%. However, the variables of inflation and institutional quality show an insignificant relationship with growth. In addition, some of the institutional quality indicators such as government effectiveness, control of corruption, and rule of law have high correlation coefficient exceeding 80%, and these have the potential of causing estimation problems. As a result, an index comprising of all the institutional quality indicators was formulated and used in estimation. Besides, bilateral and multilateral aid cannot be simultaneously estimated within the same regression model especially since their correlation coefficient is greater than 0.8. Accordingly, bilateral and multilateral aid were regressed in separate models.

3.3 Panel Unit Roots Test Results

Before estimating a model using panel data, it is important to first establish the stationarity properties of the data set as this enables one to determine the appropriate panel data analysis method to employ. This achieved using a unit roots test, and Table 3 below presents results of the panel unit roots test.

Table 3. Panel Unit Root Test Results

Variable	IPS		LLC	
	Coefficient	p-value	Coefficient	p-value
GDPg	-9.4804***	0.0000	-7.2632***	0.0000
GFCF	-9.7136***	0.0000	-8.0901***	0.0495
POPg	-0.5834	0.3787	-16.3379***	0.0000
BAid	-4.9924***	0.0000	-3.7379***	0.0000
MAid	-7.2364***	0.0000	-3.2361***	0.0000
INFL	-10.5786***	0.0000	-7.0422***	0.0000
TOPEN	-1.4072*	0.0797	-2.5704***	0.0005
M2/GDP	1.7384	0.9589	-4.6660***	0.0000
INSTq	0.0408	0.5163	-1.6494**	0.0000

**Note: ***p<0.01; **p<0.05; *p<0.1

The results in Table 3 above indicate that all panels are stationary given that for every variable, at least one test suggests stationarity and this is indicated by the probability values which are less than 5%.

3.4 Panel Estimates

The objective of this study was to compare the impact of bilateral and multilateral aid on economic growth in low and middle-income SSA countries, and to determine whether it depends on institutional quality. To achieve this objective, SSA countries were grouped into low and middle-income countries using the World Bank (2017) classification, and aid-growth models were estimated differently for low and middle-income countries using systems GMM. Table 4 below presents summarized results concerning the impact of bilateral and multilateral aid on economic growth in middle-income SSA countries, and whether it depends on the quality of institutions.

Table 4. Impact of bilateral and multilateral aid on economic growth in middle-income SSA

	Systems GMM		
Variables	**Model (1)**	**Model (2)**	**Model (3)**
LagGDPg	.173***	.156	.131*
	(.040)	(.258)	(.071)
GFCF	-.002	.004	.046
	(.028)	(.048)	(.025)
POPg	-3.987	1.253	-5.422
	(5.085)	(3.126)	(3.925)
TOPEN	11.575	1.516	8.515
	(12.323)	(6.082)	(7.065)
INFL	-.042	-.009	-.176*
	(.039)	(.072)	(.088)
M2/GDP	14.351***	11.936*	11.101**
	(.346)	(5.577)	(4.967)
INSTq	-.203	3.006	-10.035*
	(5.260)	(12.195)	(5.308)
BAid		.462	
		(1.635)	
BAid*INSTq		-.613	
		(1.876)	
MAid			7.203*
			(3.663)
Maid*INSTq			8.977*
			(4.416)
Observations	247	247	247
Number of pid	13	13	13
No. of instruments	26	26	26
AR1 p-value	.0052	.062	.00698
AR2 p-value	.00979	.663	.466
Sargan p-value	.506	.427	.795
Hansen p-value	.901	.985	.993

Note: Standard errors in parentheses; ***p<0.01, **p<0.05, p<0.1

From Model (2) in Table 4 above, the coefficient of bilateral aid and the coefficient of interaction between bilateral aid and institutional quality are insignificant. In Model (3), the coefficient of multilateral aid and the coefficient of interaction between multilateral aid and institutions are both positive and significant. This implies that keeping other factors constant, an increase in multilateral aid by one percentage point would lead to an increase in economic growth by 7.203 percentage points in middle-income SSA countries. Furthermore, keeping other factors constant, the impact of multilateral aid on economic growth in middle-income SSA countries, would increase by 8.977 percentage points if there was an increase in institutional quality by one percentage point. Table 4 further shows that among the control variables, particularly in Model (3), the coefficients of lagged GDP growth, inflation, and financial sector development are significant and bear the expected theoretical signs. However, the coefficient of institutional quality, although significant, it bears an unexpected theoretical sign.

After examining the impact of bilateral and multilateral aid on economic growth in middle-income SSA countries, and whether it depends on the quality of institutions, a similar approach was adopted for the purpose of examining the impact of bilateral and multilateral aid on economic growth in low-income SSA countries, and whether it depends on the quality of institutions. Table 5 below presents summarized results regarding the impact of bilateral and multilateral aid on economic growth in low-income SSA countries, and whether it depends on the quality of institutions.

Table 5. Impact of bilateral and multilateral aid on economic growth in low-income SSA

	Systems GMM		
Variables	**Model (1)**	**Model (2)**	**Model (3)**
LagGDPg	.063	.042	.055
	(.062)	(.061)	(.055)
GFCF	.004	.028*	.019
	(.018)	(.013)	(.022)
POPg	.672	-.831	1.217
	(.853)	(.757)	(1.041)
TOPEN	5.042	5.682	-2.971
	(3.914)	(4.179)	(6.850)
INFL	-.105**	-.111**	-.106
	(.046)	(.046)	(.066)
M2/GDP	-5.629	-12.106	10.388
	(7.173)	(9.055)	(17.303)
INSTq	2.148	-6.408	-3.341
	(3.010)	(5.665)	(8.562)
BAid		.581	
		(.388)	
BAid*INSTq		.559	
		(.704)	
Maid			1.451**
			(1.084)
Maid*INSTq			1.459**
			(.951)
Observations	247	247	247
Number of pid	13	13	13
No. of instruments	26	26	26
AR1 p-value	.00315	.00150	.00323
AR2 p-value	.540	.346	.318
Sargan p-value	.811	.739	.852
Hansen p-value	.924	.986	.984

Note: Standard errors in parentheses; ***p<0.01, **p<0.05, p<0.1

From Model (2) in Table 5 above, the coefficient of bilateral aid and the coefficient of bilateral aid and institutional quality are both positive and insignificant. However, in Model (3), the coefficient of multilateral aid and the coefficient of the interaction between multilateral and institutional quality are both positive and significant. This means that keeping other factors constant, an increase in multilateral aid by one percentage point would lead to an increase in economic growth of low-income SSA countries by 1.451 percentage points. Moreover, keeping other factors constant, the impact of multilateral aid on economic growth of low-income SSA countries would increase by 1.459 percentage points if there was an increase in the quality of institutions by one percentage point. Overall, multilateral aid has a positive impact on the economic growth of both middle and low-income SSA countries, and the impact depends on the institutional quality in both categories of countries. The findings lends greater credence to the notion that multilateral aid is a more effective channel of aid delivery since it is less prone to fragmentation, comes with the much needed expertize, and focusses more on initiatives that lead to tangible transformation in recipient countries (Addison et al., 2015; Nunnenkamp et al., 2017; Gulrajani, 2016). Furthermore, the findings support the notion that institutional quality is an important factor of aid effectiveness particularly in developing countries (Kabir, 2020; Dietrich, 2016; Arvin, 1999). It has also been claimed that the effectiveness of aid varies across countries depending on the level of development (Biscaye et al., 2017). However, the findings of the study do not support this notion, instead, they underscore the fact that aid effectiveness is important regardless the level of development of recipient countries. Clearly, the policy implication drawn from the study is that donors should focus more on advancing aid through multilateral channels, and that governments of SSA countries—both middle and low-income—should focus on strengthening the quality of their institutions if they are to maximize value from multilateral aid.

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