

Innovations

Impact of Foreign Direct Investment and Official Development Assistance on Economic Growth of Sampled African countries: System GMM approach

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Abstract: *Based on existing research, it is unclear how Official Development Assistance and Foreign Direct Investment specifically affect economic growth. Therefore, this study aims to investigate their long-term impact on economic growth in selected African countries, as well as their simultaneous effects. The researchers sought to answer the following questions: What is the long-term impact of Official Development Assistance and Foreign Direct Investment on economic growth in these African countries, and what are their simultaneous effects? The study utilized secondary data from the World Bank and the Organization for Economic Cooperation and Development (OECD) for the period from 1985 to 2014. The researchers employed a method called System GMM, which addresses issues of endogeneity, data dynamics, and utilizes internally generated instrument variables. The findings of the study reveal that Official Development Assistance has a positive and statistically significant impact on the growth rate of GDP per capita. On the other hand, Foreign Direct Investment has a positive impact, but it is not statistically significant in relation to the growth rate of GDP per capita. Additionally, the study found that governance and the initial level of per capita GDP growth rate have a negative impact on the growth rate of GDP per capita. However, the variable of political stability has a statistically positive effect on per capita GDP growth rate. To enhance the positive impact of political stability, it is recommended that African leaders establish democratic institutions within their macroeconomic sphere. Furthermore, it is advisable to develop mechanisms and institutions that facilitate the effective utilization of Official Development Assistance.*

Key words: *Foreign Direct Investment, Official Development Assistance, Economic growth, System GMM*

Introduction

Background

According to Farell (2008), foreign direct investment (FDI) can be defined as a bundle of assets which includes capital, technology, management, and entrepreneurship that allow foreigners to invest in other countries. Many policy and decision makers believe that FDI is the key mechanism for the economic growth of a nation. Existing research can be categorized into two groups. The first group of studies concludes that FDI has a positive and statistically significant impact on economic growth (Farell, 2008). Conversely, the second group believes that FDI has either a negative or neutral impact on economic growth. For example, some researchers argue that FDI only affects the level of income without influencing long-term growth, based on neoclassical growth models (De Mello, 1997). Similarly, it is argued that FDI may not be beneficial due to the possibility of profit repatriation from the recipient country to the sending country (Seabra and Flach, 2005). On the other hand, those who claim a positive effect of FDI on economic growth are mainly rooted in endogenous growth theories. They predict a positive effect of FDI on growth, as long as it generates increasing returns to production through externalities (De Mello, 1999).

Official Development Assistance (ODA) can be provided in two ways: bilaterally, where one government directly provides aid to another, or multilaterally, through organizations such as the International Development Association (IDA) of the World Bank, regional development banks, and United Nations Agencies (Todaro and Smith, 2002). While the global donor community generally aims to promote economic growth and reduce poverty in developing countries through aid, Alesina and Dollar (2000) discovered that the allocation of aid is influenced not only by economic needs and policy performance of the recipient countries but also by strategic motives (such as strengthening commercial and financial relations, opening markets, and creating opportunities for investors) and political considerations (to maintain alignment with the donor).

For many developing countries, attracting foreign direct investment (FDI) is considered a highly recommended strategy for reducing poverty. By fulfilling certain criteria, such as restructuring and reforming their socio-economic and political structures, these countries have been successful in attracting significant amounts of FDI. Economic theories support this strategy, considering FDI as a key pillar for poverty reduction. However, empirical research presents a different perspective. For instance, economists Adam and Tweneboah (2009) conducted a

well-known analysis on the impact of FDI on economic growth in Ghana. They concluded that FDI is necessary for the economic growth of the country. Similarly, De Mello (1999) examined the impact of FDI on economic growth using panel data methods and found a positive influence. Bosworth and Collins (1999) conducted a study on the impact of FDI on economic growth in both developing and developed countries, and they also found a positive relationship between the two.

However, there are researchers who criticize the findings that support the positive impact of Foreign Direct Investment (FDI) on economic growth. Hanson (2001), for instance, questions these conclusions. Similarly, Gorg and Greenwood (2002) conducted research using micro-level data to examine the spillover effects of foreign-owned firms on domestically owned firms. They found a negative spillover effect. Libsey (2002), in a review of macro and micro literature, concluded that FDI can have both negative and positive effects on economic growth. Theoretically, Findlay (1978) and Wang and Bloodstream (1992) argue that FDI is an essential mechanism for technology and know-how transfer. However, they also highlight that spillovers are not automatic and that certain conditions must be met in order to achieve the goal of transferring technological know-how.

Official Development Assistance (ODA) has been utilized as a solution to address various socio-economic challenges in developing countries for many years. However, existing empirical studies have not provided a clear consensus on the direct impact of ODA on economic growth. Numerous research papers have been conducted in this field, but researchers have not reached a unanimous conclusion regarding the influence of foreign aid on economic growth. These papers can generally be categorized into two main groups.

The first category of studies identifies a positive impact of foreign assistance on economic growth. Scholars in political science emphasize the significance of ODA under certain necessary conditions. One common way in which aid contributes to economic development in developing countries is by funding various projects aimed at fostering economic growth. For instance, researchers such as Dalgaard, Hansen, and Tarp (2004) have found that foreign aid contributes to an increase in per capita income in nations. Roodman (2004) suggests that under favorable circumstances, including good domestic policies, governance, external conditions, and historical circumstances, foreign aid can have a positive impact on the development of a nation.

This research aims to address the following research questions:

1. What is the long-run impact of Official Development Assistance (ODA) on economic growth for sampled African countries?
2. What is the long-run impact of Foreign Direct Investment (FDI) on economic growth for sampled African countries?
3. What is the simultaneous impact of FDI and ODA on economic growth?

This study stands out from previous empirical research conducted in this field due to its methodology, which employs System GMM. This methodology addresses the limitations of other approaches such as OLS, difference GMM, and other panel data methods. System GMM has the advantage of controlling for endogeneity issues, capturing the dynamics of the data, and generating internal instrumental variables.

The findings of this study have significant implications for policymakers and decision-makers in African countries. By examining the long-run impact of Official Development Assistance (ODA) and Foreign Direct Investment (FDI) on economic growth, this research provides valuable insights into the effectiveness of these two sectors in promoting economic development.

For policymakers, the study's findings can inform the formulation of appropriate policies regarding ODA and FDI. If the research demonstrates a positive long-run impact of ODA on economic growth, policymakers may consider increasing their focus on attracting and effectively utilizing foreign aid to foster development. They can prioritize sectors and projects that have demonstrated positive outcomes in terms of economic growth.

Similarly, if the study reveals a positive long-run impact of FDI on economic growth in African countries, policymakers can devise strategies to attract more foreign investment. This may involve creating an enabling business environment, providing incentives for foreign investors, and promoting sectors with high potential for productivity gains and technology transfer.

Furthermore, the research outcomes will provide valuable insights for future researchers working in the field of ODA and FDI. They can build upon the findings of this study, refine the methodologies used, and explore additional factors that may influence the relationship between ODA, FDI, and economic growth. This can

contribute to a deeper understanding of the mechanisms through which these sectors impact economic development in African countries.

Empirical Research Review

In his 2006 paper titled 'Foreign Direct Investment and Productivity: Evidence from the East Asian economies,' ThiamHee Ng examined the relationship between foreign direct investment (FDI) and productivity growth in various East Asian countries, including China, Hong Kong SAR, Indonesia, Malaysia, Republic of Korea, Singapore, Taiwan Province of China, and Thailand (Ng, 2006). To investigate this relationship, Ng utilized two tests: the Granger causality test and the Toda-Yamamoto version of the Granger causality test. These tests aimed to determine whether inflows of FDI "cause" productivity growth. The results of the study revealed that only two countries demonstrated evidence of a one-way causality between FDI inflows and total factor productivity growth. In other words, FDI inflows influenced productivity growth in these countries (Ng, 2006). However, the study found limited evidence to suggest that FDI inflows cause changes in technical aspects or efficiency within the sample economies (Ng, 2006).

In their 2007 article titled 'The Effect of Foreign Aid on Economic Growth in Developing Countries,' Chatrna and Ekanayake conducted an analysis to examine the impact of foreign direct investment (FDI) on the economic growth of developing countries. They considered three perspectives: time, regions, and income level. The authors found that FDI had an adverse effect on economic growth in the first two perspectives, indicating that FDI was not positively correlated with economic growth during those periods or in those regions. However, when considering different income levels, they observed that FDI had a positive impact on the economic growth rate of developing countries, with the exception of low-income countries where the impact was negative. In summary, Chatrna and Ekanayake's analysis suggests that the effect of FDI on economic growth in developing countries varies depending on the perspective considered. While FDI may have a negative impact on growth in certain time periods and regions, it generally has a positive influence on economic growth, except for low-income countries where the effect is negative.

In his 2008 paper on 'Foreign Aid and Economic Growth: the Case of Tanzania,' Kabete conducted a study to examine the relationship between foreign aid and GDP growth in Tanzania. The study found that foreign aid and total debt service had a negative impact on Tanzania's GDP growth rate. This suggests that relying heavily on foreign aid and managing debt obligations hindered the country's economic growth (Kabete, 2008). On the other hand, positive effects on GDP growth were observed in

relation to export growth and net national savings. These factors increased Tanzania's capacity to invest and contributed to economic growth, aligning with expectations (Kabete, 2008). The study also revealed that the government's development expenditures and recurrent expenditures funded by foreign aid had a negative impact on GDP growth. This implies that the level of development expenditures undertaken was either inadequate or not productive enough to positively impact GDP growth (Kabete, 2008). Furthermore, the impact of overall aid and aid specifically allocated for development expenditures was found to be more negative in the 1990s compared to the early 2000s (Kabete, 2008).

In their 2014 paper, Elizabeth and Asiedu investigated the impact of foreign aid in education on economic growth in Sub-Saharan African countries. Their findings revealed the following: (I) Aid specifically targeting primary education had a positive and significant effect on economic growth. This suggests that investments in primary education through foreign aid contributed to economic development in the region. (II) On the other hand, aid directed towards post-primary education had either an adverse effect or, at best, no significant impact on economic growth. This implies that foreign aid in post-primary education did not lead to substantial economic benefits or may have had unintended negative consequences on growth. (III) The study also discovered that economic growth increased as the share of aid allocated to primary education, relative to total education aid, rose. This implies that prioritizing primary education within the allocation of foreign aid positively influenced economic growth outcomes.

In their 2011 paper titled 'Aid and Foreign Direct Investment in Vietnam,' Wang and Balasubramanyam examined the correlation between official development assistance (ODA) and foreign direct investment (FDI) in Vietnam. They argued for revising the criteria and terms associated with ODA, suggesting a shift towards promoting the growth of FDI and trade as key drivers of economic development in the nation. While their emphasis on FDI and trade as engines of growth is valid, completely disregarding the role of ODA oversimplifies the complexities of development. ODA plays a crucial role in addressing social and developmental challenges, and relying solely on FDI and trade can raise concerns of dependency and vulnerability. Therefore, it is important to adopt a more nuanced approach that recognizes the potential benefits of ODA alongside a well-balanced and diversified economic strategy.

In Vangelis Vitalis' 2001 research paper titled 'Official Development Assistance and Foreign Direct Investment: Improving the Synergies,' they critique the traditional

approach to attracting and utilizing Official Development Assistance (ODA). They argue that this approach is ineffective and instead recommend the establishment of a strong framework for implementing and evaluating ODA as a prerequisite. Furthermore, they suggest that directing ODA towards specific purposes can enhance its effectiveness and efficiency. However, it is important to critically evaluate their perspective and strike a balance between new approaches and the value of traditional methods in achieving sustainable development.

The findings of Kimura and Todo's research on the relationship between foreign aid and foreign direct investment (FDI) warrant some critical evaluation. While their study suggests that foreign aid, in general, does not have a significant impact on FDI, it is important to consider the limitations and complexities of this relationship. The specific dynamics and factors influencing FDI are multifaceted and can vary across different contexts. Additionally, focusing on the vanguard effect of Japanese aid raises questions about the transferability of their findings to other donor countries. It is crucial to recognize that the impact of foreign aid on FDI may depend on various factors such as the recipient country's economic conditions, investment climate, and the specific objectives and strategies of the donor country. Therefore, further research and analysis are necessary to gain a comprehensive understanding of the complex relationship between foreign aid and FDI, as well as its implications for different donor-recipient dynamics.

Methods and methodology

Description of the study area

The purpose of this study was to examine the effects of Official Development Assistance (ODA) and Foreign Direct Investment (FDI) on the economic growth of 24 African countries. The countries included in this analysis are: Ethiopia, Kenya, Sudan, Malawi, Rwanda, Tanzania, Algeria, Egypt, Morocco, Togo, Niger, Ghana, Nigeria, Senegal, Sierra Leone, Cameroon, Botswana, South Africa, Namibia, Gabon, Benin, and Mauritania. The researchers divided the data into two groups to assess the impact of FDI and ODA on economic growth. The first group consisted of sub-Saharan African countries, while the second group included three North African countries. It is worth noting that over 62 percent of the selected countries had an economic growth rate higher than the African average.

Research design

To address the research question, the researcher chose a quantitative research design and utilized panel data from 1985 to 2014. The data was analyzed using the System Generalized Methods of Moments modeling approach, with the assistance of STATA Version 14.

Type and source of data

The study utilized secondary data obtained from the World Bank and the Organization for Economic Cooperation and Development (OECD) databases, covering the period from 1985 to 2014. The independent variables examined in the study were Foreign Direct Investment (FDI Inward) as a percentage of GDP and Official Development Assistance as a percentage of GDP. The dependent variable focused on was the Growth Rate of Real GDP per capita, with data primarily sourced from the World Bank and OECD databases. Several control variables were also included, namely: Inflow Remittances as a share of GDP, trade openness as the share of GDP, the logarithm of a country's GDP per capita, inflation measured by the consumer price index, governance level, and population growth (annual %).

Method of Estimation

To investigate these hypotheses, the researcher conducted an analysis of panel data using a sample of 24 African countries from 1985 to 2014. The base growth model used in this study is based on the works of Barro (1998) and Kosack and Tobin (2006), and it is expressed as follows:

The Base Model:

$$Growth_GDPCap_{it} = \beta_0 + \beta_1 FDI_GDP_{it} + \beta_2 ODA_GDP_{it} + \beta_3 REMIT_GDP_{it} + \beta_4 Openness_{i,t} + \beta_5 Democracy_{i,t} + \beta_6 Governance_{i,t} + \beta_7 Inflation_{i,t} + \beta_8 Pop_growth_{i,t} + \beta_9 initialGDPCap_{i,t-1} + \eta_i + \varepsilon_{i,t} \dots (1)$$

The subscript (*i, t*) refers to the country index and time index, respectively, η_i is the unobserved time-invariant country-specific effect. $\varepsilon_{i,t}$ is the error term.

System GMM Modeling

In order to evaluate the influence of Foreign Direct Investment (FDI) and Official Development Assistance (ODA) on the economic growth of chosen African countries, the researcher employed the System Generalized Methods of Moments (IV approach, system GMM). This methodology offers certain advantages, including:

Endogeneity problem

Endogeneity occurs when there is a correlation between the explanatory variable in the model and the error term. To address this issue, it is necessary to introduce instrumental variables that satisfy the exclusion restriction and relevance requirements. The best approach to tackle endogeneity is through the use of instrumental variables in the System Generalized Methods of Moments (System GMM) framework. Kosack and Tobin have identified that System GMM is superior to the instrumental variable (IV) approach in addressing the problem of endogeneity. Technically, System GMM estimators assume endogeneity and utilize moment conditions to generate a set of valid instruments for the endogenous regressor, which can significantly enhance efficiency (Blundell and Bond, 1998; Kosack and Tobin, 2006; Roodman, 2006).

Omitted variable Bias:

One of the causes of endogeneity is the presence of omitted variable bias. In Equation (1), the inclusion of unobserved effects can lead to biased results due to the potential correlation between these country-specific effects and the initial level of income. To address this issue, it is necessary to employ a regression approach that incorporates these effects into the analysis.

Static Framework:

Dynamic approaches, such as System Generalized Methods of Moments (system GMM), are often more suitable for fitting growth models compared to static panel approaches. Scholars such as Barro and Sala-i-Martin (1997), Sachs (2003), and Eicher and Schreiber (2007) have highlighted the effectiveness of dynamic approaches in capturing the dynamics of economic growth.

Advantage of internal Instrument Variable (IV):

An advantage of the System Generalized Methods of Moments (system GMM) is its capability to generate internal instrument variables. In addition to using external instrument variables, this estimation approach employs internally generated instruments to address the issues of endogeneity and omission bias. By utilizing these internal instruments, system GMM helps to better control for potential biases and enhance the validity of the analysis.

To illustrate how the system GMM model addresses the aforementioned issues, let us present Equation (1) as follows:

$$\Delta Y_{i,t} = B_o + \beta_1 Y_{i,t-1} + \beta_2 X_{i,t} + \eta_i + \varepsilon_{i,t} \text{----- (2)}$$

Or equivalently

$$Y_{i,t} = (1 + \beta_1)Y_{i,t-1} + \beta_2 X_{i,t} + \eta_i + \varepsilon_{i,t} \text{----- (3)}$$

where $\Delta Y_{i,t}$ is the growth rate of real GDP per capita, $Y_{i,t-1}$ is the log of the initial level of GDP per capita, $X_{i,t}$ is the set of explanatory variables, η_i is an unobserved country-specific effect, $\varepsilon_{i,t}$ is the time-varying error term, and the subscript (i, t) denotes, respectively, the country and the year.

Arellano and Bond (1991) suggest first-differencing Equation (3) into

$$\Delta Y_{i,t} = (Y_{i,t} - Y_{i,t-1}) = (1 + \beta) \Delta Y_{i,t-1} + \beta_2 \Delta X_{i,t} + \Delta \varepsilon_{i,t} \text{----- (4)}$$

The approach mentioned here is called Difference GMM or D-GMM. By taking the difference of Equation (2), D-GMM eliminates the unobserved country-specific effect since the disturbance term ($\Delta \varepsilon_i$) does not vary over time ($\Delta \varepsilon_i = \varepsilon_i - \varepsilon_i = 0$). This helps to eliminate bias caused by omitted variables. Moreover, D-GMM addresses endogeneity by using lagged values of the explanatory variables as instruments. However, differencing introduces a new statistical issue where the constructed differenced error term ($\Delta \varepsilon_{it}$) becomes correlated with the differenced lagged variable. To overcome this problem, Arellano and Bover (1995) and Blundell and Bond (1998) propose the system GMM (S-GMM) estimator. The S-GMM estimator achieves superior efficiency by simultaneously estimating two equations with distinct instruments: the first-differenced equation (Equation (4) mentioned earlier) and the level equation (the original Equation (3) mentioned earlier).

Result and Discussion

To evaluate the long-term effects of Foreign Direct Investment (FDI) and Official Development Assistance (ODA) on economic growth in 24 selected African countries, the researcher employed the system GMM estimation approach. Before presenting the regression results, summary statistics were calculated and are provided in the following tables:

Table one: summary statistics

Variable	Observation	Mean	Std. Dev.	Min	Max
GDGg-CAP	143	- 0.5809153	0.9510542	-3.67536	0.9976348
FDI(%GDP)	142	- 0.1704966	0.8885787	-4.437921	4.430005
ODA (% GDP)	142	0.0174688	0.1659013	- 0.3025473	0.7930966
REMper(%GDP)	139	0.3957322	3.828988	- 0.3548501	45.12387
Intrade(%GDP)	140	0.0022386	0.0542625	-0.120491	0.2928413
Political Stability	144	- 0.3194585	0.6133337	-2.524014	0.8765044
Governance	144	- 0.4219712	0.8764835	-4.471309	1.271426
Inflation	141	0.1497315	1.940328	-4.724663	20.60074
popn	144	0.3266576	0.5052049	-1.970334	1.045031
Source: Authors estimation					

Table one provides descriptive statistics for the variables included in the study. The data covers the period from 1985 to 2014, but to improve accuracy and statistical power, the data was grouped by calculating averages over five-year intervals. This resulted in a maximum of 144 observations in the study. The table presents the mean, standard deviation, minimum, and maximum values for all the variables.

Specifically, focusing on the growth rate of GDP per capita, there are 143 total observations. The mean growth rate is -0.58, indicating a negative average growth. The standard deviation is 0.951, suggesting variation around the mean. The minimum growth rate recorded is -3.67, indicating a significant contraction in GDP

per capita, while the maximum growth rate is 0.99, indicating a substantial increase in GDP per capita.

Table two: Correlation table

Variable name	FDIper~P r~P	ODA	REMpe r~P	Trade P~P	Political Stabilit y~y	Gover n~e	Inflat ~n	pop n	_con s
FDIper~P(% GDP)	1.0000								
ODA (%GDP)	0.0786	1.00 00							
REMper~P	0.0183	- 0.01 60	1.0000						
TradeP~P	- 0.0495	- 0.28 23	0.0034	1.0000					
Political stability	- 0.1413	0.10 15	- 0.0473	- 0.0678	1.0000				
Govern~e	0.0588	- 0.02 72	-0.0373	0.1214	-0.3829	1.0000			
Inflat~n	- 0.0743	- 0.06 36	-0.0968	- 0.0633	0.0734	0.1186	1.00 00		
popn	0.1893	0.01 89	0.0812	0.1724	-0.0155	- 0.0583	- 0.24 30	1.00 00	
_cons	0.0885	- 0.02 99	-0.1425	- 0.0727	0.2350	0.2728	0.15 57	- 0.44 24	1.00 00

In statistics, the correlation coefficient is used to assess the strength and direction of a linear relationship between two variables on a scatterplot. Table two provides information on the correlation coefficients for the variables included in the study. Based on the table, it can be observed that more than 95 percent of the variables have correlation coefficients below 0.5. This indicates that there is no perfect correlation among the explanatory variables in the model. Consequently, we can conclude that our model does not suffer from the issue of autocorrelation.

Relevance of the Instrument Variable

$$FDI_{percGDP} = 0.109788 \cdot \ln \ln FDI + 0.149685 \cdot ODA + 0.0067303 \cdot REM_{perGDP} + 0.0192833 \cdot \ln trade +$$

$$(0.0400751) \quad (0.0356514) \quad (0.5825227) \quad (0.0051895)$$

$$0.0211869 \cdot \text{political stability} - 0.053915 \cdot \ln \ln inflation + 0.000101 \ln Y_i + 0.0402557 \cdot \text{Governance} - 0.4405206 \cdot \text{popn}$$

$$(0.2132488) \quad (0.1486779) \quad (0.1236955) \quad (0.0002) \quad (0.125213)$$

Robust standard error in parentheses, ***p<0.01, **p<0.05 *p<0.1

The equation displayed above represents the first stage test result from an Ordinary Least Squares (OLS) regression. In terms of the relevance of the instrument variable, it is observed that the instrument variable exhibits a strong correlation with the endogenous variable, which is the growth rate of GDP per capita. This indicates that the relevance requirement for the instrument variable is satisfied.

To meet the exogeneity requirement, it is necessary for the instrument variable to have no correlation with the error term in the model. According to the study conducted by Burnside and Dollar (2000), it is stated that the initial level of Foreign Direct Investment (FDI) does not exhibit any correlation with the error terms or the growth rate of GDP per capita. This implies that the instrument variable used in the model satisfies the exogeneity requirement as well.

Overall, the strong correlation between the instrument variable and the endogenous variable confirms the relevance requirement, while the lack of correlation between the instrument variable and the error terms supports the exogeneity requirement.

Result from System Generalized Methods of Moments

Dependent variable GDP per capital growth a rate					
Independent variable	Model ONE (For Sub Saharan Africa countries- without external IV)	Model TWO (SGMM without Ex. IV)	Model THREE (SGMM with Ex. IV)	Model FOUR (SGMM with Ex. IV)	Model FIVE (Fixed Effect)
FDI(%GDP)	1.055804 (3.983103)	.4136854 (.3693638)	.5394427 (.7835705)	.5974051** (.2751519)	.0771994 (.1599547)
ODA(%GDP)	5.314667*** (1.45436)	2.710566** (1.091228)	3.668221*** (.9833292)	3.77328*** (1.274394)	1.289386 * (.7387218)
REM(%GDP)	.0023411 (.0373409)	.0016116 (.0297982)	.0115908 (.013725)	.014175* (.0068402)	.125454 (.275698)
Governance	.1569426** (.0706525)	.0157718 (.0766158)	-.3793764 (.30865)	-.5203211 (.4196008)	-.2700839 ** (.1078888)
Political Stability	.5361006*** (.173017)	.6927988*** (.3799714)	.5247377 * (.2950271)	.3921304 (.4192488)	.5346596 ** (.206915)
Inflation	-.1524381 (.330808)	-.172448 (.2088895)	-.2003806** (.0770421)	-.2011169 (.1982727)	-.0471531 (.1225874)
Popngr	.005735 (.1790538)	-.0267182 (.2039908)	-.0800924 (.113177)	-.0981284** (.0387296)	.4313298 (.2859474)

Intrade	.0600348 (.4576863)	.0757051 (.1724769)	.195031 ** (.0912683)	.231845 (.1593102)	-.0496581 (.06226)
Ln yi	-.0461721 (.0496932)	-.0122401 (.0169532)	-.0453795 (.036987)	- .0566257** (.0256)	-
FDIDEM	.1426311 3.30638	-	-	-.5783261 (2.189815)	-
Other controls Variables	Constant govexpens, aidsquare,	Constant govexpens, aidsquare,	Constant govexpens, aidsquare	Constant govexpens, aidsquare	LagGDPperCAP, constant, govexpens, dmfdidep, REMperGDP_1,
Observation	144	144	144	144	144
External IV	No	NO	Yes	Yes	No
Sargan test(P-value)	0.173	0.387,	0.817	1.000	-
Hansen Test (p-value)	1.000	-	0.334	1.000	-
R-square					0.5657
Hausman test (P-value)					0.0000***

Note: Robust standard error in parentheses, *p < 0.01, ** p < 0.05 *p<0.1**

Table three: Main result form System GMM and Fixed Effect estimation approaches

Source: Authors estimation

The table above shows different results from various models used to analyze the impact of Official Development Assistance (ODA) on the economic growth of African countries. Let's break down the key findings from each column:

Column 1: The first column represents the results obtained from the GMM system, using internally generated instrument variables for sub-Saharan African countries. According to these results, ODA has a positive and statistically significant effect on the growth rate of GDP per capita. Specifically, a one percent increase in the share of ODA as a percentage of GDP leads to a 5.3 percent increase in the growth rate of GDP per capita.

Column 2: The second column shows the results for a sample of African countries. In this model, ODA also has a positive and statistically significant impact on economic growth. A one percent increase in ODA leads to a 2.7 percent increase in economic growth for these countries.

Column 3: The third column represents the results from the GMM system with external instrument variables. In this model, ODA has a positive and statistically significant impact on the growth rate of GDP per capita at a significance level of one percent. Increasing the levels of ODA by one unit causes a 3.66 percent increase in the growth rate of GDP per capita.

Column 4: In the fourth model, researchers took into account the interaction between stability and foreign direct investment (FDI). Both policy variables, stability and FDI, have a positive and statistically significant impact on the economic growth of the sampled African countries. Specifically, a one percent increase in FDI leads to a 0.59 percent increase in economic growth, while a one percent increase in ODA and remittances respectively leads to a 3.78 percent and 0.014 percent increase in economic development.

In conclusion, both ODA and FDI have a positive and statistically significant impact on the economic growth of the analyzed countries. These findings align with previous research conducted by Papanek (1973), Dowling and Hiemenz (1982), Gupta and Islam (1983), Hansen and Tarp (2000), Gomanee, et al. (2003), Dalgaard et al. (2004), and Karras (2006).

Regarding the second policy variable, Foreign Direct Investment (FDI), it is found to have a positive impact on the economic growth rate, as expected. However, this impact is not statistically significant, except when the interaction between FDI and Political stability is taken into account. This finding aligns with the research conducted by De Mello in 1997. In the above model, all the explanatory variables

have the expected signs. For example, governance and the initial level of per capita GDP growth rate have a negative impact on the growth rate of GDP per capita.

To ensure the reliability of the model, the researchers also conducted a panel fixed effect estimation approach, and the results were highly consistent with the findings from the System GMM. To address the second research question, the researchers conducted a t-test to examine the simultaneous impact of Foreign Direct Investment and Official Development Assistance as a percentage of GDP. The results indicate that the simultaneous impact is positive and statistically significant at a 5 percent significance level.

Conclusion and Policy Recommendation

5.1. Conclusion

The main objective of this study is to investigate the long-term effects of Official Development Assistance (ODA) and Foreign Direct Investment (FDI) on economic growth in selected African countries from 1985 to 2015, using the System Generalized Methods of Moments model. The findings indicate that FDI has a positive impact on economic growth, but it is not statistically significant, except when the interaction between FDI and the political stability variable is considered. On the other hand, ODA has a positive and statistically significant impact on the growth of GDP per capita in all models.

These results align with previous studies conducted by Papanek (1973), Dowling and Hiemenz (1982), Gupta and Islam (1983), Hansen and Tarp (2000), and Burnside and Dollar (2000).

In general, the study finds that Official Development Assistance as a percentage of GDP, political stability, inflation, and trade have statistically significant effects, while the other variables have the expected direction of impact but are not statistically significant.

Furthermore, the study reveals that the simultaneous impact of FDI and ODA as a percentage of GDP is positive and statistically significant at a 5 percent significance level. The results obtained from the System GMM models, both with and without external instrumental variables, are consistent with the findings from the fixed effects estimation.

In summary, the study confirms the positive and significant impact of ODA on economic growth and suggests that the interaction between FDI and political stability plays a crucial role in determining its impact.

5.2. Recommendation

Based on the findings that Official Development Assistance (ODA) has a positive and statistically significant impact on the economic growth of the sampled countries, it is advisable for policymakers and decision-makers in Africa to develop mechanisms that promote the inflow of ODA and ensure its effective utilization. This can be done by fostering partnerships with donor countries and international organizations, implementing transparency and accountability measures, and directing the funds towards projects and programs that have the potential to stimulate economic growth and development.

Furthermore, since the current level and impact of governance are found to be negative, it is crucial for policymakers and decision-makers in African countries to prioritize efforts towards achieving good governance and improving institutional frameworks. This can be accomplished through reforms aimed at enhancing transparency, reducing corruption, strengthening the rule of law, promoting efficient public administration, and ensuring the protection of property rights. By establishing a conducive governance environment, African countries can attract investments, stimulate economic activity, and foster sustainable development.

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