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Does Leveraging International Financial Flows a Key Driver for Growth in East Africa Region?

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ABSTRACT

This study aims to investigate whether international financial flows serve as a significant driver of growth in the East African region. Utilizing Fixed Effect (FE) panel data estimation for Kenya, Uganda, Tanzania, Rwanda, and Burundi spanning the period from 1990 to 2021, the empirical results reveal a positive and statistically significant relationship between official development assistance per capita and the growth rate of gross domestic product (GDP) in the East African region. Furthermore, trade openness and inflation rates appear to exhibit a negative relationship with GDP in the region. Conversely, population growth in East African countries shows a positive relationship with GDP growth in the region. The study recommends prioritizing and increasing investments in official development assistance, urging East African governments and international organizations to continue allocating resources towards development projects aimed at fostering economic growth. Policymakers are advised to concentrate on enhancing the efficiency and effectiveness of utilizing official development assistance, ensuring that funds are directed towards sectors with high growth potential such as infrastructure, human capital, and entrepreneurship. Additionally, the study emphasizes the importance of strengthening partnerships between donors and recipient countries and promoting transparency and accountability in the allocation and implementation of official development assistance initiatives.

Keywords: International Financial Flows, ODA, FDI, Fixed Effect, Economic Growth.

JEL Codes: F31, O11.

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1. INTRODUCTION

In Africa and beyond, scholars, practitioners, and the general public are grabbed with a multitude of conflicting perspectives regarding the impact of International Financial Flows (i.e., foreign aid and foreign direct investment) on economic growth and prosperity of the continent (Sijabat, 2022; Ayenew, 2022; Njoroge, 2021; Nguyen et al., 2022). The lack of agreement among researchers' findings in empirical studies adds complexities to policy-making for nations (Burnside and Dollar, 2000; Easterly, 2002; Blaise, 2005). This would imply that relying on international capital inflows as a financing mechanism for development could exacerbate uncertainty, especially considering its unreliable nature in fostering growth within the African economic context. On the other hand, through a collaborative approach, African nations may enhance their prospects for future success and increase their autonomy by financing economic growth and development through a blend of official development assistance (ODA) and private capital, such as foreign direct investment (FDI) (Kelsall, 2008; Opuku, Ibrahim and Sare., 2019).

International financial Flows refers to the movement of money or capital across borders between countries. These flows can take various forms including trade finance, foreign direct investment (FDI), portfolio investment, remittances, official development assistance (ODA), and borrowing and lending between countries or international financial institutions. International financial flows are influenced by factors such as interest rates, exchange rates, government policies, and economic conditions in different countries (Bussiere, Schmidt, and Valla, 2018). Over recent years, there have been significant transformations in international capital movements, evident not just in their scale but also in their geographical distribution and the types of flows involved, including bank transactions, foreign direct investment, and portfolio investments (comprising debt and equity). At this juncture, the factors driving these evolving patterns and their implications remain unclear, likely sparking discussions in both academic and policy spheres.

For an extended period of time, the global community has acknowledged the imperative for developing nations to receive significant external financing resources to bridge the savings and foreign exchange deficits linked with rapid capital accumulation growth. This necessity is particularly acute in Africa, notably in Sub-Saharan Africa., where income levels are insufficient to generate adequate domestic resources for even modest investment and growth rates. Given the inadequacy and volatility of international financial flows coupled with the susceptibility to frequent terms of trade and natural shocks, it is unsurprising that economic growth remains erratic and insufficient to facilitate improvements in living standards and domestic savings. Breaking free from this cycle, probably a consistent infusion of international financial flows will provide a significant impetus for the region to accelerate and sustain growth. Additionally, over the last five decades, Africa has struggled to draw the essential international financial flows needed to achieve sustainable economic growth rates over the medium and long term as highlighted by Asiedu (2004). Nuidé and Kruggel (2007) identified institutional deficiencies and environmental factors within many African governments as primary reasons for the continent's inability to attract international financial flows effectively. These factors contribute to a distinctive high-risk profile for such flows, particularly concerning the continent's aspirations to attain the seventeen (17) Sustainable Development Goals (SDGs).

Statistics indicate that remittance has become Africa's largest source of external financial flows followed by foreign direct investment. From a peak of 6.6% of GDP in 1990, aid flow to Africa represents about 2.5% of Africa's GDP. However, there has been a notable decrease in the portion of these flows allocated as budget support. Africa receives a relatively small share of global foreign direct investment (FDI) inflows, accounting for approximately 5% of the total. Additionally, its cumulative stock of FDI constitutes less than 3% of the global aggregate. Countries with large diaspora populations can tap into the funds within the region to invest locally by benefiting from patriotic dividends. However, it is important to note that illegal capital flows from Africa pose a central challenge to development as they remove domestic resources which could be crucial for the African continent's development. (Yeboua, Cillier and Le Roux, 2022). The analysis of international financial flows suggests that actions aimed at boosting financial flows while curbing illicit outflows have the potential to boost growth and alleviate poverty across lower-middle- and upper-middle-income brackets. Meanwhile, aid emerges as the most impactful factor in poverty alleviation amongst low-income groups.

An important take away to note on the international financial flows is the fact that the growing dependence on these financial flows particularly the official development assistance (ODA) and foreign direct investment (FDI) has further underscored the continent's reliance on external actors to drive economic development. For quite sometimes, Sub-Saharan Africa particularly in the East African region has predominantly received international financial flows in terms of FDI and ODA to support infrastructure development, health care, education, and power generation (Prizzon et al., 2017). This confirms the fact that well-managed international financial flows hold the potential to provide significant resources to impoverished nations and facilitate beneficial transfers of technology, skills, and other assets. These positive effects underscore the importance of implementing a range of economic development strategies particularly for East African sub-region to leverage various avenues for maximizing their economies. The significance of this paper lies in its contribution to the ongoing debates (both academic and policy) surrounding the international financial flows-economic growth nexus. By confirming this link, the paper makes a significant contribution to the academic and policy discourse and offers insights to enhance policy development and evidence-based decision-making.

2. LITERATURE REVIEW

In examining the relationship between international financial flows and economic growth, it becomes imperative to delve into the empirical literature surrounding this dynamic interplay. Based on data gathered from 126 developing countries, spanning various economic levels Vita and Kyaw (2009) asserted that foreign direct investment (FDI) only translates into economic growth when local economies demonstrate the capacity to enhance productivity and absorb significant increases, addressing such deficiencies evident in Africa. Azam and Ahmed (2014) concluded that FDI in the Commonwealth of Independent States (CIS) played a pivotal role in fostering economic development by establishing conducive conditions and a favorable investment environment. Burnside and Dollar (2000) delve into the relationship between foreign aid and economic growth, uncovering a robust positive effect for low-income countries that adhere to sound economic policies, while at the same time observing a discernible impact for nations with poor economic governance. Consequently, the efficacy of aid hinges on its allocation to the most efficiently governed countries. Furthermore, previous empirical findings

yield inconclusive results regarding the growth implications of official development assistance (ODA). The outcome varies based on factors such as sample size, the specification of the econometric model, and the treatment of endogeneity (Doucouliagos and Paldam 2008, Murinde, 2012).

Aids inflows are frequently allocated towards investments in human capital and infrastructure aligning with Hirschman's (1958) concept of "Social Overhead Capital" (SOC). These investments are said to be vital for the development trajectory, yet their benefits typically materialize in the long term through the expansion of productive capacities. While Rajan and Subramanian (2008) do not uncover clear evidence supporting a positive and robust growth impact of official development assistance (ODA), Arndt et al., (2010) arrived at the opposite conclusion using a similar methodology and dataset, particularly when considering the effects of aid on social welfare indicators such as poverty reduction, provision of basic healthcare and primary education.

The impact of foreign direct investment (FDI) largely hinges on the specific activities it finances. FDI whether in varying forms or within diverse economic contexts, is likely to yield differing effects on economic growth (Borenztein et al., 1998; Wooster and Diebel, 2010). E.g., in low-income African economies abundant in natural resources, where FDI primarily focuses on natural resource extraction, it may impede the diversification of the manufacturing sector, thus hindering overall growth. Conversely, FDI directed towards the manufacturing sector, as seen in many Asian economies, has the potential to bolster growth by capitalizing on a cost-effective skilled labor force. Stiglitz and Ocampo (2008) suggested that the failure to differentiate between various types of FDI could explain the challenges in clearly delineating the role of FDI in the development process. Meta-regression conducted by Bruno and Campos (2013) across 103 micro and macro studies revealed that the number of studies supporting the positive impact of FDI on growth outweighs those that do not by four to five times. Additionally, the author observes that the effect of FDI may be more substantial than commonly perceived.

The liberalization of capital accounts to facilitate short-term capital movements is often viewed as a means to enhance market discipline and facilitate the mobilization of external resources. Conversely, Stiglitz and Ocampo (2008) contend that such liberalization poses risks, as it is associated with significant economic fluctuations and heightened volatility of resources that may not necessarily be directed towards productive investments. Short-term capital flows, being sensitive to changes in the external environment, have the potential to exacerbate domestic business cycles, leading to abrupt slowdowns or outflows (Calvo, 1998). Consequently, these short-term financial flows can serve as a conduit for transmitting external fluctuations to the domestic economy, potentially precipitating crises that are not solely attributable to domestic economic management. Ocampo, Spiegel, and Stiglitz (2008) highlight a growing consensus since the early 2000s that pro-cyclical short-term speculative flows contribute to increased consumption volatility and entail substantial social costs.

In a nutshell, while the empirical literature exploring the relationship between international financial flows and economic growth provides valuable insights, it often presents conflicting views and remains inconclusive. Various studies have examined the impact of factors such as foreign aid, foreign direct investment (FDI), remittances, and portfolio flows on economic growth, yielding mixed results. While some studies assert a positive correlation

between certain types of financial flows and growth, others find limited or even adverse effects. The conflicting findings may stem from differences in methodologies, sample sizes, data sources, and the specific contexts under study. Additionally, the complexity of economic systems and the multitude of factors influencing growth make it challenging to establish clear causal relationships. Thus, further research using robust methodologies and comprehensive datasets is needed to provide a more nuanced understanding of how international financial flows affect economic growth in different contexts.

3. METHODOLOGY

3.1. Model Specification.

In modeling the relationship between international financial flows and economic growth in the East Africa region, the Panel data fixed effect model was specified. The panel data fixed effect model is a statistical technique used to analyse data collected over multiple periods and across different entities, such as countries, firms, and individuals. In this model, the focus is on examining the relationship between independent variables (predictors) and dependent variables (outcome) while accounting for individual-specific time-invariant characteristics. In the fixed effect model, individual-specific time invariant effects are included in the model as fixed parameters. These effects capture unobserved heterogeneity across entities and are assumed to be constant over time. By controlling for these fixed effects, the model aims to eliminate the bias that may arise from time-invariant characteristics of the entities being studied. The fixed effect model is presented as follows:

$$Y_{it} = \beta_0 + \beta_1' X_{it} + \beta_2 Z_i + u_{it} \dots\dots\dots (i)$$

Where Z_i are unobserved time-invariant individual heterogeneity across the entities $i = 1, \dots, n$.

β's are estimated coefficients.

Y_{it} the dependent variable

$'X_{it}$ captures the independent variables

If we let

$$\alpha_i = \beta_0 + \beta_2 Z_i \dots\dots\dots (ii)$$

we obtain

$$Y_{it} = \alpha_i + \beta_1' X_{it} + u_{it} \dots\dots\dots (iii)$$

With individual specific intercepts $\alpha_i, 1, \dots, n$, and each of these can be understood as the fixed effect of entity i, model (iii) is the fixed effect model. The model can be expressed as a regression model containing $n - 1$ dummy regressors and a constant as;

$$Y_{it} = \beta_0 + \beta_1' X_{it} + \lambda_2 D2_i + \lambda_3 D3_i + \cdots + \lambda_n Dn_i + u_{it} \dots\dots\dots (iv)$$

Where $D2_i, D3_i, \dots, Dn_i$ are dummy variables.

3.2. Variable Description.

Table 1 describes the variables utilized in our study, along with details regarding their types and scales of measurement.

Table 1. Description of Variables and their Measurements

Variable Notation	Variable Description	Scale of Measurement	Type of Variable
GDP	Growth rate of Gross Domestic Product (GDP)	Ration Scale	Response variable
oda_percap	Official Development Assistance	Ratio Scale	Predictor variable
fdi	Foreign Direct Investment	Ratio Scale	Predictor variable
$open$	Trade Openness	Ratio Scale	Predictor variable
$infl$	Rate of inflation	Ratio Scale	Predictor variable
$popg$	Growth rate of the population	Ratio Scale	Predictor variable
lnd_lck	Landlockedness of a country.	Dummy	1 = If a landlocked country, 0 = Otherwise

4. EMPIRICAL RESULTS AND DISCUSSION

4.1. Descriptive Statistics Analysis

The descriptive statistics for the variables utilized in our analysis are presented in Table 2. Given that our analysis pertains to a panel dataset, it's evident that this descriptive analysis encompasses three aspects of each variable. These include the "overall variation" or "total variability" observed across all entities and time periods within the dataset, the "between-entity variation" (also referred to as "cross-sectional variation" or "group-level variation"), which highlights differences between entities at specific time points, and the "within-entity variation" (also known as "time-series variation" or "individual-level variation"), indicating changes in the variable within individual entities over time.

The variable "country" exhibits an overall variation average of 3, with a considerable dispersion from the mean observed in between variation. The most significant minimum value is found within the variation, whereas its highest maximum value of 5 is present in both the overall and between variations. The variable $year$ exhibits an overall variation average of 2005.5, with a considerable dispersion from the mean of 9.262082 observed in the overall variation. The most notable minimum value is 1990 and it seems to appear in both the overall and within-variation, while its highest maximum value of 2021 is shared between the overall and between-variation. The variable $gdpg$ exhibits an overall variation average of 4.383918, with a considerable dispersion from the mean of 6.244201 observed in the overall-variation. The most notable minimum value is -51.49082 and it seems to appear in the within-variation, while its highest maximum value is 35.22408 capture in the overall variation.

Equally speaking, the oda_percap variable has a mean of 48.6343 in the overall variation, with the least deviation from this mean observed in the between-variation, amounting to 14.8268. Within the variation, it records a minimum value of 3.86505, while its maximum value of 123.5794 is observed in the overall-variation. The variable $infl$ exhibits an overall-variation average of 10.48759, with a considerable dispersion from the mean of 10.27741 observed in the overall variation. The most notable minimum value is -2.814698 and it seems

to appear in overall-variation, while its highest maximum value is 64.56989 recorded in the within-variation. The $popg$ variable has a mean of 3.41E+08 in the overall variation, with the least deviation from this mean observed in the between-variation, amounting to 0.4167039. Within the variation, it records minimum and maximum values of -16.19732 and 17.30881 respectively. In addition, the variable fdi exhibits an overall variation average of 10.48759, with a considerable dispersion from the mean of 4.63E+08 observed in the overall-variation. The most notable minimum value is -3.83E+08 and it seems to appear in the within-variation, while its highest maximum value is 2.09E+09 recorded in the overall-variation.

Lastly the dummy variable lnd_lck has a mean of 0.6 with the largest deviation from this mean of 0.5477226 observed in the between-variation. It has a minimum value of 0.6 in the within-variation and a maximum value of 1 in both the overall and between-variation. The entire dataset comprises a total of 160 observations, denoted as "N," which signifies the number of distinct units or entities for which data has been gathered throughout the study period. It has 5 total number of observations per entity which is country i.e., “n”, Additionally, the dataset spans a total of 32 time periods, indicated by "T".

Table 2. Descriptive Statistics Output

Variable		Mean	Std. dev.	Min	Max	Observations	
$country$	Overall	3	1.418654	1	5	N =	160
	Between		1.581139	1	5	n =	5
	Within		0	3	3	T =	32
$year$	Overall	2005.5	9.262082	1990	2021	N =	160
	Between		2.015515	2005.5	2005.5	n =	5
	Within		5.976602	1990	2021	T =	32
$gdpg$	Overall	4.383918	6.244201	-50.24807	35.22408	N =	160
	Between		2.015515	1.218132	6.253144	n =	5
	Within		5.976602	-51.49082	33.98133	T =	32
oda_percap	Overall	48.6343	22.71388	9.520816	123.5794	N =	160
	Between		14.8268	37.55781	74.73377	n =	5
	Within		18.41051	3.86505	97.47996	T =	32
$infl$	Overall	10.48759	10.27741	-2.814698	64	N =	160
	Between		1.161823	8.925916	11.80625	n =	5
	Within		10.22441	-2.688963	64.56989	T =	32
$popg$	Overall	2.664165	2.695489	-16.88063	16.625	N =	160
	Between		0.4167039	1.980854	3.095521	n =	5
	Within		2.669433	-16.19732	17.30881	T =	32
lnd_lck	Overall	0.6	0.4914361	0	1	N =	160
	Between		0.5477226	0	1	n =	5
	Within		0	0.6	0.6	T =	32
fdi	Overall	3.41E+08	4.63E+08	-5910000	2.09E+09	N =	160
	Between		2.94E+08	9238781	7.25E+08	n =	5
	Within		3.80E+08	-3.83E+08	1.70E+09	T =	32
$open$	Overall	35.49476	13.737	12.95595	72.85848	N =	160
	Between		11.64238	18.70182	51.07478	n =	5
	Within		8.921165	11.65633	68.48144	T =	32

4.2. Choice Between Random Effect Model and Fixed Effect Model

The Random Effects and Fixed Effects models are two common approached for analysing panel data, each methodology with its own strength and assumptions. Usually, fixed effects models are suitable when a researcher suspects that unobserved individual heterogeneity (individual specific characteristics) is correlated with the predictor variables. Therefore, the fixed effects models control for time-invariant individual-specific heterogeneity by usually including a dummy variable for each entity-hence allowing the estimation of within-entity effects while controlling for individual differences. On the other hand, random effects models are appropriate when unobserved individual time-invariant characteristics are uncorrelated with the predictor variables and hence they are assumed to vary randomly across entities. Random effects models permit the estimation of average effects across all entities while accounting for individual time-invariant characteristics.

In our analysis, we had to make a choice whether to conduct our analysis with the help of a random effect model or rather with the help of fixed effect model. The choice between the two was to be made with the help of the Hausman test statistics. Ideally, the Hausman test statistics is a statistical test used to choose between the fixed effect (FE) and random effect (RE) models in panel data analysis. The Hausman test examines whether the estimated coefficients from the random effects models are consistent and efficient compared to the coefficients from the fixed effects models, given certain assumptions. The null hypothesis *(H_0)* of the Hausman test posits that the coefficients estimated in the random effects model are consistent and efficient compared to those in the fixed effects model (Mathematically, the coefficients estimated in the random effects model are not significantly different from those in the fixed effects models).

Table 3. Hausman (1978) Specification Test

Variables	Coefficients		(b-B) Difference	Sqrt(diag(V_b-V_B)) Std.err.
	(b) Fixed	(B) Random		
oda_percap	0.0669551	0.0537989	0.0131562	0.0195306
fdi	-1.14e-09	3.12e-10	-1.45e-09	8.31e-10
$open$	-0.1172903	-0.0547779	-0.0625124	0.0447146
$infl$	-0.1261424	-0.1251812	-0.0009613	0.0142981
$popg$	0.5073118	0.5190748	-0.011763	0.019809
Chi-square test value		13.723		
P-value		0.003		

Table 3 presents the results of the Hausman (1978) Specification test, aiding our selection between fixed effects and random effects estimation. The p-value from the Hausman test falls below the predetermined significance level of 0.05, leading us to reject the null hypothesis. Consequently, we opt for the fixed effects (FE) model over the random effects (RE) model in this instance.

4.3. Fixed Effect Model Estimation

We conducted our analysis to explore whether leveraging international financial flows contributes to economic growth in the East Africa region with the help of the fixed effect (FE) model. As it has been described earlier in this paper, the fixed effect model is used with an interest in how individual characteristics impact the outcome over time. In this case, the fixed

effect model makes use of the dummy variable as an important attribute in capturing the so-called individual-time specific effects that do not change over time. The dummy variables are a special types of categorical variables that indicate the presence or absence of a particular characteristic of an individual, group, or entity in the data set.

Table 4 provides the results of our fixed effect (FE) estimation. It can be seen that the variable oda_percap representing the official development assistance per capita has a positive and a statistically significant relationship with the growth rate of the gross domestic product of the East African region. Specifically, a percentage-point increase in official development per capita leads to a 0.067 unit increase in the gross domestic product of the East African region. However, the variable fdi which measures the inflows of foreign direct investment into the region seems to negatively affect gross domestic product but this effect is rather insignificant. The positive and statistically significant relationship between official development assistance and economic growth are consistent with the results obtained by Kim (2013) whereby he examined the correlation between official development assistance and economic growth through a series of analysis including the Ordinary Least Square (OLS) regression, panel data analysis and Granger-causality analysis. The OLS results revealed a positive and significant relationship between official development assistance and gross domestic product for Bulgaria, Latvia, Lithuania, Malta and Slovakia. Additionally, the granger causality analysis indicated a complex interplay of economic growth among Eastern European nations, highlighting a significant level of interconnectedness.

A positive relationship between official development assistance (ODA) and economic growth in the East African region can be attributed to several factors. The official development assistance (ODA) inflows provide essential financial resources that can be allocated towards infrastructure development, such as transportation networks, energy systems, and telecommunications, which are essential for fostering economic activity and enhancing productivity. Equally speaking the official development assistance (ODA) usually targets sectors such as healthcare and education, leading to improvements in human capital, workforce productivity, and overall well-being, which are fundamental drivers for long-term economic growth.

Table 4. Fixed Effects (FE) Estimation Results

$gdpg$	Coef.	Std.err.	t-value	p-value	[95% Conf	Interval]	Sig
oda_percap	.067	.029	2.28	.024	.009	.125	**
fdi	-1.14e-09	1.38e-09	-0.82	.412	-3.87e-09	1.60e-09	
$open$	-.117	.055	-2.15	.033	-.225	-.01	**
$inlf$	-.126	.051	-2.46	.015	-.228	-.025	**
$popg$	.507	.187	2.71	.007	.138	.877	***
lnd_lck	0	(Omitted).	.	.	.	.	
$Constant$	5.651	2.106	2.68	.008	1.489	9.812	***

Mean dependent var	4.384	SD dependent var	6.244
R-squared	0.170	Number of obs	160
F-test	6.141	Prob > F	0.000
Akaike crit. (AIC)	1007.375	Bayesian crit. (BIC)	1025.826

**** p<.01, ** p<.05, * p<.1*

When official development assistance per capita exhibits a positive relationship with economic growth implies that aid inflows are effectively utilized by recipient countries to invest in infrastructure, human capital and other productive sectors and hence stimulate economic activities and fostering growth. Additionally, it could indicate improved policy coherence and governance structures in both donor and recipient nations, facilitating efficient aid allocation and utilization. This positive relationship underscores the potential of official development assistance to act as a catalyst for sustainable development, fostering prosperity and reducing poverty in recipient countries. However, it is quite essential to ensure transparency, accountability, and alignment with recipient countries development priorities to maximize the efficiency of official development assistance in promoting economic growth.

The variables $open$ which capture the degree to which a country trade with the rest of the world and $infl$ which capture the rate of inflation of a country seems to have a negative relationship with the gross domestic product of the East African region whereby a unit increase in trade openness leads to a decrease in gross domestic product by 0.117 units. Equally speaking, a unit increase in the rate of inflation brings about a fall in the gross domestic product of a region by 0.126 units. The findings that trade openness has a statistical and negative relationship with economic growth are consistent with the finding by Ramzan et al (2019) where they make an assessment of trade openness on the growth rate of gross domestic product by accounting for the interaction of the Total Factor Productivity. They also made use of the Generalized Methods of Moments (GMM) estimator for the dynamic panel data model while applying for 82 countries for the period 1980-2014. The results showed a non-linear relationship between trade openness and economic growth in the sense that trade might have a negative impact on gross domestic product when countries have a low Total Factor Productivity (TFP) level. Equally speaking, the results that inflation slows down growth in the East African region are consistent with the results obtained by Khan and Senhadji (2001) who examined a threshold effect of inflation on economic growth separately in industrial and developing countries for 140 countries using the non-linear least squares (NLLS) and conditional least squares and found the existence of threshold beyond which inflation exerts a slowdown effect on economic growth.

The negative relationship between trade openness and economic growth might imply that industries and other production units located in these countries are facing challenges in competing with foreign counterparts leading to a decline in domestic production and economic output. This could be due to factors such as unfavorable trade agreements, lack of competitiveness, and insufficient domestic infrastructure. Additionally, it could imply that the benefits of trade openness which include access to foreign markets and technology transfer are not effectively translating into enhanced productivity and growth.

Equally speaking, the high levels of inflation can erode consumers' purchasing power, leading to reduced consumer spending and investment which are essential drivers of economic growth. Inflationary pressures can furthermore increase uncertainty and undermine investors' confidence at the same time discouraging long-term investment and economic activity. Moreso, high inflation rates may prompt central banks to tighten monetary policy by raising interest rates to control inflation, which can further dampen economic growth by increasing borrowing costs for businesses and consumers.

Additionally, the variable $popg$ which captures the population growth of the countries in the East African region has a positive relationship with the growth rate of gross domestic

product of the East Africa region where a one-percentage-point increase in the population growth brings about a 0.507 unit increase in the gross domestic product of the East African region. These results are compatible with the findings by Akintunde et al (2013) who employed a five-year average to examine the relationship between population dynamics and economic growth in sub-Saharan African nations spanning from 1975 to 2005. Using the pooled Ordinary Least Squares (OLS) and dynamic panel methodologies, they analyzed data gathered from thirty-five (35) countries in the sub-Saharan region. Results proved that high fertility rates have a negative impact on economic growth. The positive relationship between population growth rate and economic growth can have economic implications as the population growth can stimulate economic expansion by increasing the size of the labor force which in turn can lead to higher production levels and greater output. This can result in increased consumption, investment, and entrepreneurial activity, driving economic growth through increased demand and productivity. Additionally, a larger population can create opportunities for economies of scale and specialization, fostering innovation and efficiency gains across various sectors.

Important to note is the omitted coefficient of the dummy variable lnd_lck representing the land lockedness or the access to ocean feature of the countries in the East Africa region. The econometric reason for including an omitted dummy variable coefficient in fixed effect estimation lies in the necessity to account for individual-specific effects that do not change over time. The fixed effect model controls for these time-invariant individual country-specific effects by including dummy variables for each country. The coefficient is usually omitted to avoid perfect multicollinearity among the dummy variables. Perfect multicollinearity occurs when one variable can be perfectly predicted by a linear combination of other variables in the model. Including dummy variables for all countries in the dataset would result in perfect multicollinearity since the sum of the dummy variables for each country would always equal one, as a result, the regression model would not be able to estimate the coefficient accurately.

5. CONCLUSION AND RECOMMENDATIONS

The paper concludes that official development assistance per capita has a positive and statistically significant relationship with the growth rate of the gross domestic product of the East African region. The paper recommends prioritization and an increase in investing in official development assistance. In the same manner, the paper recommends East African governments and international organizations to continue allocating resources towards development projects aimed at fostering economic growth in the region. Additionally, the policy makers should focus on enhancing the effectiveness and efficiency of utilizing official development assistance while ensuring that funds are directed towards high-growth potential sectors such as infrastructure development, human capital, and entrepreneurship. Equally speaking the paper recommends strengthening partnerships between donors and recipient countries and promoting transparency and accountability in official development assistance allocation and implementation. Overall, leveraging the positive relationship between ODA per capita and GDP growth offers an opportunity for policymakers to implement targeted interventions that promote sustainable and inclusive economic development in East Africa.

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