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Does Foreign Aid Influence Corruption? New Evidence in East Africa Community Member Countries

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Abstract:
The key objective in this paper is to examine the foreign aid impact on corruption in East Africa Community Member countries. The paper employed Pooled Ordinary Least Square (Pooled OLS), Random Effect (RE) and Fixed Effect (FE) approach to find out the external aid effects on corruption. The study used panel data covering from the year from 1996 to 2017 for 5 EAC member nations. The study findings revealed that foreign aid flow has reduced impact on the level of corruption in EAC nations. Based on the findings which found that aid flows reduce the level of corruption in EAC member countries, it is suggested that cooperation between donor countries should be strengthen when allocate aid and through attaching conditions among other things which help to improve governance and institutional framework. In addition, the allocation of aid to the poor countries should be based on selective approach in such way that major conditions for a nation to meet the requirements for aid should be institutional quality reforms.

Keywords: *Aid, Corruption, Governance, Development, Developing countries.*

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1.0 Introduction

The economic trend of the EAC member nations for the past four decades have been to a certain extent unequal and unpredictable (Table 1). Rwanda experienced a much highest economic growth rate during the period of 1996 to 2017 compared to any other East Africa countries. Rwanda, Tanzania and Uganda had registered good economic performance in the 2000s. However, Burundi and Kenya facing fluctuation of growth rate during this period. This has been caused by political instability that affect these nations. In the 2006 to 2010, most of these nations reached an average economic growth between 1.1% to 5%. This situation caused by the falling of commodity prices, financial crisis and world demand fluctuation. In most recent years, despite of the EAC member nations took measures to reform their economies which is important for recovery the global financial crisis consequences, some countries of EAC only could be able to manage to reached low and moderate rate of economic growth. The lowest economic growth was of Burundi and Uganda, while Rwanda, Tanzania and Kenya's economy realized higher growth rate.

Table 1: EAC Member Countries' Average GDP Growth (%), 1996-2017

Country	1996-2000	2001-2005	2006-2010	2011-2017
Burundi	-2.7	-0.8	1.1	-1.1
Kenya	-0.65	0.86	2.2	2.7
Rwanda	3.2	5.7	5.5	4.5
Tanzania	1.61	4.2	2.82	3.63
Uganda	2.8	3.1	4.4	1.6

***Source*:** World Development Indicators, Online Database, 2019

In connection with these difficulties, foreign assistance has been recognized by EAC member countries in particular, and by African countries in general to boost the region's economy. It is well recognized that foreign aid flows are among the most dynamic foreign capital influx to developing nations. With respect to East African Community Member countries, during 1960s most of these countries started to get their political independence from colonies, the region has been a major recipient of aid funds. Foreign aid has become an important tool to pursue economic growth by including foreign aid in their development programs. Therefore, external aid is received by African and other developing nations helping to stimulate economic growth and the people' welfare in these nations (Mohammed *et. al.,* 2015)

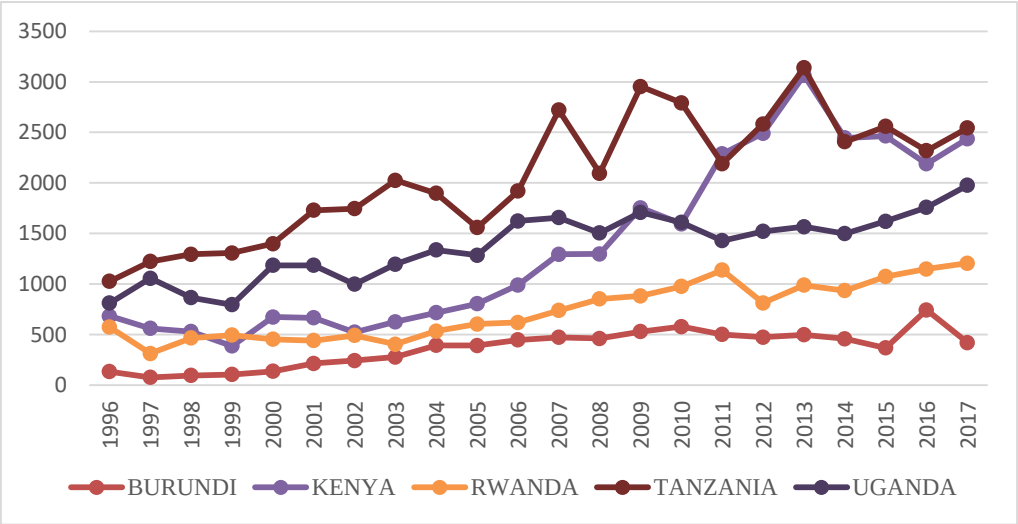

Fig. 1 Official Development Assistance (ODA) Trend 1996–2017

In recent years' aid flows into the African countries has been gradually increase overtime. Developing countries received more foreign aid from different donors. Alesina and Dollar (2000) highlighted that approximately two thirds of aid fund have been directed to developing countries to financing government activities. However, these amount of funds received by poor countries goes to government administrative official' hand through some of general public forms. Tavares (2003) point out that some authors believed that external aid funds are the one that are fertile territories to corruption because of aid disbursements that are handed over free to local governments. The flows of foreign aid into the EAC region are quite unequal and volatile as shown in Figure 1. Rwanda and Tanzania are the top recipient nations of aid in comparison with other EAC nations and much of the aid received directed to government consumption. Since early 1990s, Tanzania lead the region on receiving more aid, on which approximately total aid received reached US$ 1,025 million following Uganda which received approximately US$ 810. Notwithstanding, the rest of the EAC member nations (Burundi and Kenya) received the lowest aid influxes. Recently, there is slight rise in the aid flows in most of the EAC nations since 2000s but still these countries have poor institutions and governance and corruption level is high.

Corruption has become high intense topic among the researchers, scholars, development community and policy makers. Recently, scholars have conducted numerous studies for the aim of measuring the foreign aid impact on corruption which act as a way to promote governance and subsequently reducing it. International organizations like Transparency International emphasize the availability of data by generating aggregate corruption indicator, which includes more than 200 states, to evaluate the corruption level using the person's perceptions in their particular nations (Mohammed, et al. 2015). Likewise, World Bank has created aggregate governance indicators acquired from different institutions worldwide by using more than 300 variables (World Bank, 2006).

The authors have been provided definition of corruption even if to qualify in the abstract is still very challenging and again more challenging to discover in the real world. Kaufmann (1997) defined corruption as the misuse of public fund and office for private interest and it usually produce destructive effects to national development. Likewise, Todaro and Smith (2009) defined that corruption occur when unethical behaviors such as bribery and nepotism are used to manipulate the official power or motive for private welfares and other private drives. In addition, corruption weaken effectiveness of governance and damage the nation' social ethical fabric. Scholars and policy makers agreed that many factors contribute poor performance of developing countries like poor quality of governance, high corruption, institutional setup and lack of proper policy. (Forster and Forster, 2010). The process of economic growth will be weakening for those the recipient country which has poor quality of governance and institutions. It is therefore assumed that good governance, quality institutions as well as good policies, could accelerate the process of economic growth and development. external aid must also be connected to enhancing of government quality and the institutions of recipient nation. Mo (2001) argued that the low governance standard with institutions situated by advanced corruption level could serve as a hindrance to economic growth. Nonetheless, foreign aid effectiveness on pursue economic development will be story in the developing countries, if amount of foreign aid flows causes to rise corruption level and give corrupt administration more power to stay in authority. Recently, the aid efficiency on corruption for the poor governance and quality of institutions in most of recipient nations particularly African nations has raised discussion and concerns. Many researchers and political economist argue that foreign aid may promote poor governance and retard growth.

Therefore, the current paper wants to address the foreign aid effect on corruption of recipient countries.

In line with above, international organizations and developed countries have been introduce pushing mechanism to developing countries for modifying their economy and institutional framework through developing sound policies and reforms of institutional framework. In addition, the World Bank has introduced an indicator of corruption called corruption control which measures impressions of the degree upon which public authority is exercised for private benefit, including both large and small corruption forms, and also the "capture" of the government by officials and private interests.

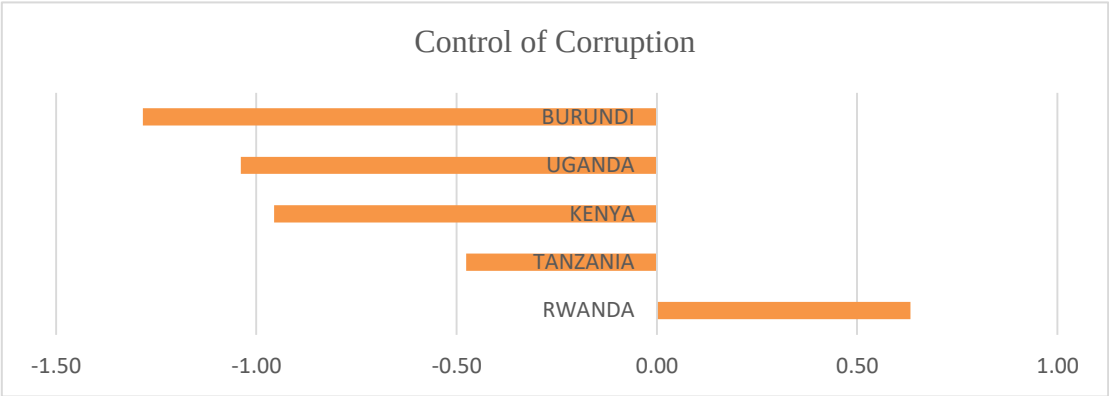

Figure 2. 2017 Control of Corruption in EAC countries

Figure 2 above demonstrates the Corruption control score for EAC Member Nations for the year 2017. The index of Control of Corruption scaled from -2.5 to 2.5. Whereas the average score for all EAC member nations is -0.65 in 2017, Many EAC nations obtain the score of between -0.48 and -1.28. World Bank (2019) specifies that only Rwanda has obtained the CC index of 0.63, which is an indication of strong corruption control. The data generally indicate that the majority of EAC nations perform poorly in the field of institutions and governance. In particular, poor performance has been realized in post-conflict nations such as Burundi, Uganda, Kenya and Tanzania. However, recently these countries showed that they are doing well in pursue economic development. In this context, few studies have explored the linkage between foreign aid and the level of corruption. Some argue that foreign aid decreases corruption, whereas others studies suggest that the degree of corruption may be increased by aid flows. The objective of the current study, therefore, is to explore the foreign aid impact on the level of corruption in EAC nations. The study applies Random Effects, Pooled OLS and Fixed Effects methods using data for 5 EAC countries cover the period of 1996-2017.
The paper is organized as follows: Section two describes the literature review on relevant subjects; Section three explains the methodology and description of the variables; Section four describes the key results findings; and Section five offers the summary, conclusion as well as policy implications of the study.

2.0 Review of literature

The foreign aid plays vital role in determine the corruption level in the country, however there is very few literatures on this issue. Previous studies mostly based on aid flow effect on economic growth theoretically and empirically, but very few aid and corruption literature have been conducted and produced inconclusive results. Some studies suggesting that foreign aid cannot be effective to stop corruption, instead foreign aid actually give raise to corruption (Mauro, 1995). Similarly, some reports have indicated that international aid flows cause recipient countries to be less accountable, which means that higher aid levels of undermine

the governance quality (Knack, 2004). The earlier studies on foreign aid and corruption relationship concluded that aid is in effective in preventing corruption. For instance, Burnside and Dollar (2000) examined the effectiveness of the allocation of aid to nations with better policies. They find that large amounts of aid contribute significantly to economic development in countries with better policies. However, they also suggested that external aid had detrimental effects on development in nations with poor policies. This implies that an increase in foreign aid appears to result in an increase in government consumption that is not investment spending, and thus government consumption does not have a positive impact on development, since a government with a weak policy setting lacks the incentive to policies reform. Knack (2004) also came up with similar results. He studied the aid effectiveness in reforming poor governance. The study was focused aid impact on democratization of recipient nations over the 1975 to 2000 period. His study found insignificant correlation between aid and freedom, this means that external aid doesn't have the influence on reform on which donors often claim.

Despite the agreement reached among empirical works which indicated that ineffectiveness of foreign aid to develop economic policy and poor governance. The transferred amount of aid flow from donors to the developing economies is on the increase trend overtime. This indicate that donors are being requested to increase their aid assistance, not otherwise. In addition, empirical evidence documented by Tavares (2003) who examined the foreign aid impact on corruption using the instrumental variables of cultural and geographical distance to the donor nations to evaluate causality using five years' data averages. Results revealed that aid has positive significance relationship with corruption. Charron (2011) also found significant positive association of aid with corruption. Using panel data of 82 countries from 1986 to 2006 he explores the foreign aid impact on corruption and employed 2SLS and GMM methods. The study revealed that there is significance association between foreign aid and corruption. Furthermore, the findings indicate that multilateral aid is highly related to low levels of corruption, while bilateral aid tends to be insignificant factor.

Okada and Samreth (2012) also suggest that foreign assistance lower corruption in less corrupt nations with a greater decreasing impact. Quanzi et.al. (2014) also came up with similar results. They examine the foreign aid the impact on corruption of 14 less developed nations in East and South Asia and uses 1996-2013 annual data. They reveal that increase in the flow of aid to South and East Asia countries is associated with reduce the corruption level. Furthermore, they disaggregate the aid into multilateral and bilateral aid, and the study indicates that foreign assistance has supported reduce corruption in the sample nations and that the multilateral aid impact on corruption reduction is greater than that of bilateral aid. Moreover, a recent analysis by Mohammed et al. (2014) indicates a positive aid relation with corruption in SSA African nations using a Quantile Regression (QR) method and data for 42 Sub-Saharan nations from 2000 to 2010. Additionally, his study results suggest that foreign assistance has a declining influence on corruption level in Sub Sahara African nations. In states which characterized by a higher degree of corruption, the effect is probable to be larger. furthermore, their research disaggregates aid into multilateral and bilateral aid, thus further findings indicating that aid from various bilateral donors has a dissimilar impact on level of corruption.

3.0 Methodology

3.1 Model Specification

As stated earlier, this paper object to study the relationship between foreign aid and corruption in East African member nations. Using Quanzi theoretical and analytical structure of 2014, the model can be described as below:

$$Corr_{it} = \alpha_{it} + \beta_1 LNODA_{it} + \beta_2 LGDP_{it} + \beta_3 RAW_{it} + \varepsilon_{it} \ldots\ldots\ldots\ldots 1$$

$$Corr_{it} = \alpha_{it} + \beta_1 LODA_{it} + \beta_2 LRGDP_{it} + \beta_3 POSLT_{it} + LRAW_{it} + \varepsilon_{it} \ldots\ldots\ldots\ldots 2$$

Where,

$CORR_{it}$ = Corruption as the proxy of Control of Corruption captures perceptions in a country i at time t

$LODA_{it}$ = Total official development assistance (ODA) to GDP as a measure of aid

$LRGDP_{it}$ = Signifies the change in per capital income of the persons. It is measured as the country's level of per capita GDP at time t

RAW_{it} = Rule of law as measures the people's perceptions on the quality rule of law implemented by the government, extent and quality of contract enforcement, excise of property rights, the justice provided and practiced by the police, and the courts, and the possibility of violence and crime at time t

$POSLT_{it}$= Political stability as a proxy for the perception of people that their government is likely to be overthrown by illegitimate or violent means, like terrorism and politically driven violence and in a country i at time t

3.2 Data and variables

The study focused on Burundi, Kenya, Rwanda, Tanzania and Uganda (EAC member's countries). The study used data from secondary source from World Development Indicators database and Worldwide Governance Indicators statistical database of 2019. The choice of variables in the model was based the availability of data and on theoretical and empirical justification. The study analyses the relationship between corruption and aid flow for the period from 1996–2017. Table 1 presents a summary and description of the key variables used in the model. The analysis used four explanatory variables which are related with corruption levels. These variable comprise of foreign aid, the per capita income level, rule of law and political stability. GDP per capita signifies the development level of the nation. It is one of the most commonly used determinants of corruption (Mohammed et. al 2014; Fréchette, 2006). GDP per capita acting a essential role to identify the corruption level in developing nations. Additionally, Political instability can be also connected to the corruption level in emerging nations. This factor is used to identify the corruption level for the certain nation (Park, 2003; Leite-Weidmann, 1999). It has been well recognized that a nation's political instability framework has been associated with higher corruption levels. In other word, the more stability in the political system of the country, the less corruption level will be. Another most significant factors determining the degree of corruption in every country is the rule of law. (Isse, 2003; Damania et al., 2004and Ali and; Mohammed et al., 2014). it is believing that the presence of rule of law discourages corruption to occur. In addition, the rule of law is also related with support the institutional quality and governance, which is definitely key factor for reducing corruption. The description of data sources, measurements of variables and their predicted signs is shown in Table 2 below.

Table 2. Data and its sources, description of variables with its expected signs

Variable	Descriptions	Data source	Expected sign
Dependent variable			
Corr	Corruption control captures perceptions of the degree to which private benefit is exerted via public power, through both small and large forms of corruption, as well as the capture of the government by insiders and private interests. o The index for Corruption control range from -2.5 to 2.5.	Worldwide Governance Indicators	Positive
Independent variables			
Foreign aid	Represents the ratio of total official development assistance (ODA) to GDP ratio which measure each aid category.	World Development Indicator database (WB)	Positive/Negative
GDP per capita	It is the difference in per capital income of the persons. It is measured as the country's per capita GDP level at time t	World Development Indicator database	Positive
Rule of law	It measures the observations of the people on the quality rule of law implemented by their government, extent and contract enforcement quality , excise of property rights, the justice provided and practiced by the police, and the courts, and the possibility of violence and crime (Worldwide Governance Indicators, 2019)	Worldwide Governance Indicators	Positive
Political stability	Represents the perception of people that their government is likely to be overthrown by or violent or illegitimate means, like terrorism and politically driven violence (Worldwide Governance Indicators, 2019)	Worldwide Governance Indicators	Positive

3.3 Empirical Methodology

The main aim of this paper is to explore the relationship between corruption and foreign aid in EAC nations. The study applied fixed and random effect and pooled ordinary Least Square (Pooled OLS) which are static linear to estimating the models, beside that the co-variance matrix approach was used for robustness check of the results. There are three techniques in the Panel data methodology, namely: random effect, fixed effect and POLS. The slope is homogeneous in the fixed and random effects model, and each unit (i) is presented by different intercepts. This means that if the data are similar in slope and the intercept across both cross section and time, this type of data represent pooled model. Pooled OLS model could be described as under:

$$\boldsymbol{y_{it} = \alpha + \beta X_{it} + v_{it}} \quad \text{.....3}$$

As *i* signify 1.....*N* and *t* signify 1.....*T*

where by *yit* is the explained variable, *Xit* are the explanatory variables, and *vit* is an error term

Additionally, random effect model has similar gradients and only the intercepts are not homogeneous in both cross section and time. The panel random effect model can be presented as below.

$$\boldsymbol{y_{it} = \alpha + \beta X_{it} + v_{it}} \quad \text{.....4}$$

$$\boldsymbol{V_{it} = \lambda_{it} + \mu_{it}} \quad \text{.....5}$$

$$\boldsymbol{y_{it} = \alpha + \beta X_{it} + \lambda_{it} + \mu_{it}} \quad \text{.....6}$$

Where by *i* signifies 1.....*N* and *t* signify 1..... *T*, *λit NIID*~ (0, 2 *vm*), *μit NIID*~ (0, 2 *vn*). The standard error (*vit)* in the above model is formulated by two elements: the unobserved effect of *λit* and the statistical error term *μit.* The λit is presumed to be independent of the standard error and explanatory variable of idiosyncratic error, while idiosyncratic error and independent variables are not dependent to each other at the time (t) and of cross section (i)That implies that E (*Xit, λit)* = 0. In addition, using the Generalized Least Square (GLS) form, the random effect model can be estimated (Wooldridge, 2002). The random effect can be statistically presented as below:

$$\widehat{\boldsymbol{\beta}}_{\boldsymbol{re}} = \left[\sum_{i=1}^{n} (\boldsymbol{X}_i' \boldsymbol{\Omega}^{-1} \boldsymbol{X}_i)\right]^{-1} \sum_{i-1}^{n} \boldsymbol{X}_i' \boldsymbol{\Omega}^{-1} \boldsymbol{Y}_i \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \mathbf{7}$$

Where by, Ω is signify as

$\Omega\Omega^{-1/2} = 1/\sigma_{\mu}\left[I_T - \theta / Tii'\right]$ **where** $\theta = 1 - \sigma_{\mu} / \sqrt{T\sigma^2 + \sigma_{\mu}^2}$

Finally, the fixed effect model, in this model the intercept normally varies whereas the gradients are same in cross section and time. This implies that in this model the presence of a noticeable variance within the cross section and the dummy variables are being applied to describe each nation. the fixed effect model can have described as below:

$$\boldsymbol{y_{it}} = \boldsymbol{\alpha} + \boldsymbol{\beta X_{it}} + \boldsymbol{v_{it}} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \mathbf{8}$$

Where *i* = 1…N and *t* =1…*T*

$$\boldsymbol{V_{it}} = \boldsymbol{\lambda_{it}} + \boldsymbol{\mu_{it}} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \boldsymbol{5}$$

Where by *μit NIID*~ (0, 2 vn) describes a country specific effect and *μit* is an idiosyncratic error term (Hsiao, 2002). In this fixed effect model, the unnoticed effect of *λit* and/or GLS gives a clear estimator (Wooldridge, 2002). The fixed effect approach will be proceeding by eliminating the *λit* as the basis of the problem, and then OLS will be applied to do regression. Indeed, estimations of the fixed effect model are classified into three: 1) within the fixed effect group; 2) the first deference fixed effect; and 3) the least squares of the fixed effect dummy variable (LSDV). Breusch and Pagan Langrangian Multiplier (LM) and Hausman test are used to decide which model is suitable for examine the foreign aid and corruption relationship (Wooldridge, 2002). The LM test was suggested by Breussch and Pagan (1980) to determine which approach between random and Pooled OLS is appropriate for estimation. If the calculated Δ2 is greater than the critical value, the inference is to reject the hypothesis null hypothesis. Besides that, the Hausman test is performed in order to choose between the random and fixed effects model. The purpose of this test is to evaluate any important relationship between the explanatory variable *(Xit)* and the unobserved fixed effect (5-007it). If the variables is correlated, i.e. *Cov (Xit , λit) ≠ 0* and one among the classical assumptions were skipped, the fixed model can be the chosen for analysis. The test is generally used to decide on the estimated parameter, where k represent the regressions' numbers. It is contrasted to the critical value of Δ2. During decision, if the value of chi-squared surpasses the critical value of chi-squared, the (Ho) hypothesis is denied. The decision is that the fixed effect is best fitting.

4.0 Empirical results and Discussion

This section, contain the empirical results of the paper for the aid effect on corruption in EAC member countries. The discussion of the results is divided into two categories which represented by two models. Tables 3 below present the correlations matrix.

Table 3: Correlation matrix

Correlation	CORR	LODA	LRGDP	POLST	RAW
CORR	1.000000				
LODA	0.184452	1.000000			
LRGDP	-0.090731	-0.748556	1.000000		
POLST	0.551386	-0.216098	0.547537	1.000000	
RAW	0.530654	-0.208334	0.582143	0.830398	1.000000

Source: E-view 9 output

The correlation matrix shows that Official Development Assistance (LODA), political stability and rule of law are positively correlated with corruption. However, the real GDP seem to have negative correlation with corruption. The existence of higher correlation among variables implies a multi-collinearity problem. Although there is a high correlation amongst variables,

these variables will also be considered because the estimation of panel data has a benefit in addressing the multi collinearity problem. Furthermore, the study separated political stability and rule of law variables and form two models in order to obtain robust results. Just like stated before, the models were evaluated by three panel methods that is Fixed Effect(FE), Random Effect (RE) and pooled Ordinary Least Squared (POLS) model, and then applied Hausman test and Breusch-Pagan LM test to recommend which method is better for final estimation of the aid and corruption relationship in EAC member countries. Therefore, all the results of the regressions have revealed that foreign aid has negative effects on corruption in the EAC Member Countries. The BPLM test and Hausman test results are summarized in Table 6. We have noticed from the results of BPLM test that POLS model is rejected. which mean the POLS model in this analysis does not appear to be best model for estimating the foreign aid and corruption relationship. The next stage was to use the Hausman test to decide if RE or FE model must be applied for estimation. In the first model the Hausman test suggest that, the random effect approach was appropriate and more suitable estimator for this analysis of first model. however, The Hausman test further showed that the fixed effect method model is a more suitable estimating the second model.

Model 1:

Table 4: Regression results summary of Pooled OLS model, Random Effects model and Fixed Effects model.

Independents Variables	Pooled OLS	Random Effect	Fixed Effect
Aid	-0.156005*	-0.171800*	-0.185948*
	(-2.132320)	(-2.881356)	(-3.065128)
Real GDP	-0.329025**	-0.108601***	-0.078275
	(-6.282194)	(-1.759792)	(-1.197586)
Rule of law	1.099336*	0.774878*	0.750545*
	(10.80623)	(8.239349)	(7.853266)
Constant	2.809206*	1.079953***	0.777134
	(8.719812)	(1.835352)	(1.282214)
Adjusted R^2	0.529857	0.445934	0.788602
Countries	5	5	5
Observation	110	110	110

Note: ***, **, * represents significance at 1%, 5% and 10% levels, respectively. Numbers in parentheses ( ) indicate t-statistics.

Source: E-view 9 output

Model 2:

Table 5: Regression results summary of Pooled OLS model, Random Effects model and Fixed Effects model.

Independents Variables	Pooled OLS	Random Effect	Fixed Effect
Aid	-0.086387	-0.115581***	-0.191104*
	(-1.204388)	(-1.761105)	(-2.706800)
Real GDP	-0.269765*	-0.105072***	0.038844
	(-5.416212)	(-1.821334)	(0.524937)
Political stability	0.653582*	0.390337*	0.295056*
	(10.53541)	(6.186645)	(4.355088)
Constant	2.838763*	1.670305*	0.223802
	(8.662938)	(3.253982)	(0.316452)
Adjusted R^2	0.517335	0.249721	0.713968
Countries	5	5	5
Observations	110	110	110

Note: ***, **, * represents significance at 1%, 5% and 10% levels, respectively. Numbers in parentheses ( ) indicate t-statistics.

Source: E-view 9 software output

Table 6: Summary of BPLM Test and Hausman Test

	Model I	Model II
Breusch-Pagan LM Test	250.0458*	51.89160*
	(0.0000)	(0.0000)
Hausman Test	2.744559	16.224164*
	(0.4327)	(0.0000)

Note: * denote 1 percent significant level
Source: E-view 9 software output

The analysis tested the joint significance level of all effects and the joint significance of the cross-sectional effects (meaning the country-fixed effects) and the time effects (that is the year-fixed effects separately) in the case of a redundant fixed effect test. Table 7 presents the results of the joint significance of all these tests using sum of square (F-test) and the probability function (Chi-square test). Therefore, the null hypothesis that the results are redundant is strongly rejected by two statistical values. This implies the existence of both country-and year-specific effects in the model.

Table 7: Summary of Redundant Fixed Effect Test

	Model I	Model II
Cross-section F	33.435115	19.217456
	(0.0000)	(0.0000)
Cross-section Chi-square	92.153451	61.785404
	(0.0000)	(0.0000)

Note: * denote 1 percent significant level
Source: E-view 9 software output

In addition, this analysis used co-variance matrix estimation method to confirm the robustness of the obtained results from the regression in order to obtain a reliable statistical inference. These estimators use the corrected co-variance matrix estimator of White's heteroscedasticity, established by White (1980). The basic feature of the estimator is that, even though the residuals are heteroscedastic, the standard errors derived from this estimator are compatible when the residuals are distributed independently. It concluded that this estimator is used to boost the standard error calculation without adjusting the coefficient estimates (Khan and Hossain, 2010). The results for robustness check for both models are shown in Table 8 and 9. The findings show that, with the exception of a robust estimate with year-specific effects, all other values are significant. The findings from both models show that the negative effect of foreign aid on corruption is robust. That is, when foreign aid increases will reduce corruption more in the EAC member countries. It is important to note that the rule of law has a very important and positive impact on corruption. That is, in the EAC member countries, the impact of the rule of law on corruption is positive, almost in line with expectations. Moreover, there is a positive relationship between political stability and corruption in EAC countries. The economic growth, measured by GDP per capital, is also negatively related to the control of corruption.

Table 8: Robust Estimation for model 1.

Independents Variables	Pooled OLS	Random Effect	Fixed Effect
ODA	-0.156005*	-0.171800*	-0.185948*
	(-3.743012)	(-5.256609)	(-5.342206)
Real GDP	-0.329025*	-0.108601**	-0.078275
	(-9.064500)	(-2.168189)	(-1.501812)
Rule of law	1.099336*	0.774878*	0.750545*
	(9.468568)	(9.278710)	(9.917505)
Constant	2.809206*	1.079953*	0.777134**
	(15.49364)	(3.048010)	(1.851699)
Adjusted R^2	**0.529857**	0.445934	
Countries	5	5	5
Observation	110	110	110

Note: ***, **, * signifies significance at 1%, 5% and 10% levels, respectively. Numbers in parentheses ( ) indicate t-statistics.
Source: E-view 9 software output

Table 9: Robust Estimation for model 2.

Independents Variables	Pooled OLS	Random Effect	Fixed Effect
ODA	-0.086387	-0.115581*	-0.182524*
	(-1.581022)	(-3.347307)	(-5.595398)
Real GDP	-0.269765*	-0.105072*	0.064882***
	(-8.473342)	(-3.001618)	(1.797401)
Political stability	0.653582*	0.390337*	0.249445*
	(9.395958)	(5.814236)	(7.669671)
Constant	2.838763*	1.670305*	0.079944
	(14.54513)	(6.206281)	(0.244228)
Adjusted R^2	0.517335	0.249721	0.909971
Countries	5	5	5
Observations	110	110	110

Note: ***, **, * signifies significance at 1%, 5% and 10% levels, respectively. Numbers in parentheses ( ) indicate t-statistics.
Source: E-view 9 software output

The findings from this study are consistent with Mohammed at el. ((2014) who applied Quantile regression to examine the foreign aid relationship with corruption. Their study found evidence for reducing aid effect on corruption in SSA. Their study indicates that for the case of SSA nations, the impact is larger in countries that are more corrupted. However, this study indicate that the effect is greater in all EAC member countries. Mohammed et al (2014) argued that the aid distribution should be strategic in such a way that institutional quality factors have to be among the essential requirements for a nation to be eligible for aid. The findings are also consistent with Quazi at, al (2015) who applied the GLS-Random Effects models with 1996 to 2013 annual data of 14 developing nations in East and South Asia to examine the foreign aid effect on corruption using control of corruption as measure of government quality. Their finding specified that foreign aid has assisted reducing corruption in the sample nations. According to Quazi at el (2015) the main reason is that aid donor should oblige the receiver governments to introduce anti-corruption reforms by assigning pre-conditions on aid packages. Moreover, the results are contrary with those of Brautigam and Knack (2004) who used the Two Stage OLS for data of 28 Sub - Saharan African nations

using ICRG as a proxy of governance quality. Their findings have shown that foreign aid weakens the governance quality. Thus, their results support the view that foreign aid is fueling corruption in Sub - Saharan African countries. However, their results contradicted with Mohammed at el. (2012) who suggested that the underperformance of the aid may result aid recipient governments fail to properly manage and distribute aid funds to their best productive areas.

5.0 Conclusion

Foreign aid is important factor that can impact economic development of the recipient nation. A numerous study has been carry out to examine the foreign aid effects on corruption. The findings of these studies are differing based on methods and countries included in the study and provide mixed results. This study examined the relationship between foreign aid flows and corruption in five East African Cooperation member nations using the time period of 1996 to 2017. The panel data approach based on POLS, RE, and FE methods were applied to examine the impact of aid flows on corruption of these nations. This paper suggests that foreign aid have a major negative effect on corruption in EAC states. This means that the assumption that foreign assistance is fueling corruption is denied. This study contributes toward existing literature by one re-examining the relation using new data set with most popular east African countries on which very few studies used east African countries to explore the relationship, two in most of the literatures use the corruption as an interaction term to find indirect effect of aid-growth linkage where by this study used corruption to find the direct relation of aid on corruption to see how aid influence corruption in east Africa, three most of the previous studies use cross section countries and ignore the regional block especially east Africa so from reason this study use region of east Africa to examine the relation . Overall, the results are statistically significant and robust to alternative corruption measures. It is recommended that the allocation of aid flows to developing and other poor countries should be pre-conditional and restricted in such a way that nations' institutional quality have to be amongst the essential requirements for a nation to be eligible for aid. Future research should also disaggregate international assistance into bilateral and multilateral aid flows in EAC member countries.

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