The Effect of Corruption on Economic Growth: Empirical Evidence in East Africa

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Abstract: **This paper analyzes the influence of corruption and other explanatory variables on the economic growth of East African countries over the period from 2013 to 2017. The study uses a panel data technique. Our empirical results found a negative effect of corruption on economic development. This gravitates to backing the "sand the wheels" hypothesis and controverts the "grease the wheels" proposition which suggests the possibility of corruption compensating the bad governance. Likewise, findings are obtained from the regulatory quality variable. However, regarding the other explanatory variables, the imported variable is statistically significant and has a positive effect on the economic growth of East African countries. While export and foreign direct investments are insignificant. Although various studies investigate the link between corruption and economic output very few studies focus on the East African region, therefore the result of this study is expected to offer robust evidence on policymakers, governments, and scholars.**

Keywords: **Control of Corruption, Regulatory Quality, FDI, Trade Openness, Economic Growth, Panel Date Technique**

I. INTRODUCTION

The detrimental impacts of bribery on development, income, and progress across countries have elevated disquiets amid the over-all public, investigators, and legislators. Corruption is extensively regarded as one of the severe impediments to progress, expansion, and welfare of the state. It inspires rent-seeking comportment and a system of intractable enticements between administration officials. Its impacts on public rearrangement programmers are grave, misleading the market situations (Rose-Ackerman, 2004; Shleifer & Vishny, 1993). Furthermore, Bribery made itself noticeable when the institute of the government was instituted due to the behavior of individuals to engage or designate to govern the regime institutes (Anyanwu, 2002; Idomeh, 2006). Sedigh and Ruzindana (1999) see bribery in Africa as a problem of monotonous aberration from reasonable criteria and standards by public bureaucrats and parties with whom they interrelate. Not only that, but the corruption harmed the social, and economic aspect of many nations in Africa particularly it became a natural habit of most government officials and private sector individuals of East African countries, which motivated various scholars to investigate such a phenomenon since it had a tremendous impact for various participants. Moreover, Bribery is an infection, which noshes into the traditional, governmental, and economic evolution of any nation and as well demolishes the operative of several structures of the regime. According to Transparent worldwide (2005) suggested that "bribery is one of the extreme contests of the modern world which demoralizes decent regime, necessarily misleads municipal strategy, hints to the misallocation of assets tribulations the private segment progress and as well harms the underprivileged".

Indeed, a single aspect of literature has recognized that at the macro level, bribery contrariwise influences private investment which in turn diminishes economic progress and improvement (Doh & Teegen, 2003; Lambsdorff & Cornelius, 2000). Conversely, an alternate outlook reinforces the proposition of' grease the wheels', in which it is claimed that bribery may be favorable in the 'alternative-best 'world since it overwhelms the falsifications triggered by the sick-functioning institutes. Furthermore, an incompetent government and regulatory system may generate obstructions to investment, and some 'lubricate money' may benefit avoid the deprived aftermaths (Huntington, 1968; Leff, 1964, Sharma & Mitra, 2015).

Nevertheless, there has been an incessant debate concerning the association between corruption and economic growth. Although plentiful researches are done on the direct ramification of corruption on economic growth, there still has yet to be a single certain inference. A numeral of remarkable studies by Mauro (1993), Blackburn, Bose, & Haque (2006), and other scholars displayed proof of the negative influence corruption has on economic growth. On the other hand, Méon& Weill (2010) and Kato & Sato (2015), and other investigators have done notable studies that contemporary evidence of auspicious significances of corruption which ratify the "greasing the wheels "hypothesis while arguing for the growth-enhancing impact of corruption.

The current paper is designated to assess the impact of corruption on the economic growth for the sample of East African Countries (EAC) namely: Ethiopia, Kenya, Tanzania, Sudan, and Uganda. Moreover, the following graph will illustrate the link between corruption and economic development.
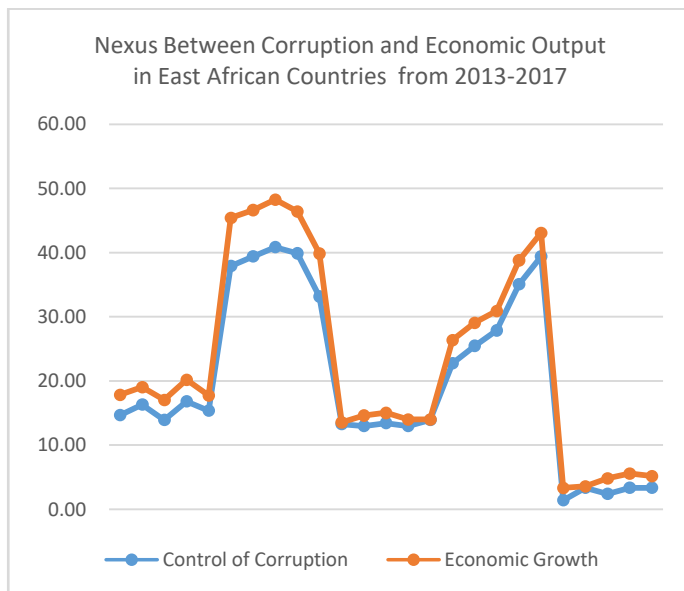
Figure 1

Sources: The Authors.

Indeed, we can observe that the trend of the graph move in the same direction, which emphasize the deep integration of these two variables, particularly as we have mentioned before the presence of high bribery not only impacted the economic sector, but it leads a drastic alternation of many other aspects including, the social and environmental aspects. Thus, the sampling countries require both collective and individual agenda that tackles the venality that harms economic and social aspects of many people, and also to learn the more advanced nations for what it takes to eliminate or at least to diminish the bribery practice both public and private sectors.

Therefore, the present study makes various offerings to existing literature. Firstly, we utilize a widespread data set for the investigation. Our sample covers nearly the main nations in the East African region over a short time horizon, 2013-2017, since there is a variation of income levels the association between corruption and growth may alter. Next, the relevant empirical and theoretical literature exposes that various other factors including, social, environmental, and institutional and other macro-economic aspects might play a significant role in promoting economic development. Thus, a range of explanatory variables is taken a consideration during the study period including Foreign Direct Investment (FDI), trade openness, and regulatory quality to help us understand their influence on the economic growth of EAC. Thirdly, our analysis employs a panel data analysis technique, including the Hausman test, and Random Effect Model (REM), and various econometric tests that are necessary for the reliability of our results.

The arrangement of the paper is as follows: the subsequent segment offers an ephemeral evaluation of the theoretical and empirical literature. Segment 3 displays empirical models and designates the data and the research methodology. Sector 4 reveals the empirical outcomes and investigates the fallouts with comprehensive deliberations and their policy insinuations. The inferences and sum up of the verdicts converse in Subdivision 5.

II. RELATED LITERATURE REVIEW

2.1 Theoretical Literature Review

Economic growth is a very famous notion from classical to updated (modern) studies. Economic development can be scrutinized and unwritten into 2 methods. Those are the reproducible or manufacture function methodologies. Most recent studies are done with the second approach which is the assessment of the economic growth at the surface through the numbers via indicators. According to the World Bank (2004), economic growth is "measurable alteration or enlargement in a country's economy". Besides, the World Bank (2004) contended that "economic evolution is conservatively measured as the proportion intensification in the Gross National Product (GNP) or Gross Domestic Product (GDP) throughout in one year". However, Corruption has various influences on the economic, cultural, and social facets, thus, corruption was widespread in real life for many decades, and currently, also it is a prevalent topic in economic research. It is existing in all the nations of the world. Indeed, corruption is defined as a transfer of interest from the public to the private subdivision. World Bank defines corruption as "The exploitation of government office for private advantage. Oxford dictionary (2000), corruption is defined as deceitful or unlawful behavior, particularly by those in government or the act of varying ethical standards into unprincipled behavior. Then, three fundamental aspects are included in the notion of corruption: ethical, behavioral, and endorsement.

Nevertheless, the influence of bribery on economic recital is not merely narrowed to a 'straitlaced view 'that unambiguously denounces bribery. Conversely, observing the gigantic literature on this issue, it appears that the ethical verdict enticements its derivation from the economic significances of corruption. A unique aspect of the literature entitlements that corruption is flourishing in a government with deprived governance and convoluted rules. In detail, in such a situation, bribery not only survives but also seems to be accommodating in cultivating the economic activity. This is commonly recognized as the 'grease the wheels 'theory. The alternative element disputes that, though bribery could be favorable in definite circumstances, it brands the results inferior as it enforces supplementary expenses in the manufacturing procedure, thus mitigating the 'sand the wheels' hypothesis.

Furthermore, as we have stated the correlated literature has delivered contradictory substantiation on the influence of bribery. Some aspect of literature states that enticement may augment effectiveness and output including the following studies, (Huntington, 1968; Leff, 1964; Leys, 1965). Theoretically and empirically, it has been revealed that in convinced circumstances, the proposition of' grease the

wheels' is effective. Concentrating on effectiveness amplifying the character of bribery in a theoretical framework, Lui (1985), has established that the scope of payoffs reflects diverse opportunity outlays as more effectual organizations have a superior aptitude or enthusiasm to purchase the subordinate operative red tape. In this setting, a license or indenture endowed based on payoff scope may accomplish Pareto-optimal distribution. The sick-operating administration frequently stimulates inadequacy and indolence as the regime administrators do not have any enticement to haste up the work. In such a situation, inducements could offer officials a much-needed motivation to not only accelerate the policymaking procedure but also attach its operationalization (e.g. see Leys, 1965). The alternative collective problem in intermediate societies narrates to low remunerations of management civil servants in contrast to the commercial or business segment. Inducements could operate as advantages for public servants and could fascinate enhanced human resources to join institutional services, who would have else selected for the commercial segment. In contrast, Bjorvatn and Naghavi (2011), displayed that bribery advances economic effectiveness only when the authentic government extent is overhead the peak level, indicating that a growth-enhancement phase of vice is conceivable. Thus, this aspect of the study proposes that sleaze may promote growth and effectiveness, and it should not be arbitrated merely based on morality.

However, the assumption of 'sand the wheels 'contends that inducements neither boosts effectiveness nor reimburses for the governmental harms. Somewhat, it destructively impacts efficacy, investment, and development (Myrdal, 1968; Rose-Ackerman, 1997). In detail, to sightsee the opportunity for removing enticements, administrators frequently postponement the process that would not seem else (Myrdal, 1968). Outspreading the dispute, Kurer (1993) opinions that the bureaucrats have an inducement to generate other falsifications in the economy to sanctuary their illegitimate source of revenue. These urgings are faultlessly well-matched with the familiarity of distinct bribers who can certainly progress their condition appreciations to a perk. In this consequence, naught can be benefited from payoff disbursement. Similarly, it is extremely doubtful that inducement reimbursement tips to the award of a license to the highest effective manufacturer. Consequently, even if the analogy amid bribery and a competitive sale embraces, the champion is not automatically the most effective and prolific one; and the utmost briber may modestly be the one most enthusiastic to negotiate on the excellence of the goods he will harvest if he gets a license (Méon & Sekkat, 2005; Rose-Ackerman, 1997). Lastly, there is barely any substantiation to propose that corruption can entice private stockholders. On the other hand, the greater level of bribery is negatively interrelated with community investment (Tanzi & Davoodi, 1997) and also fallouts in an alteration of public expenditure from extremely well-organized areas to less effective parts (Mauro, 1995).

2.2 Empirical Literature Review

Many prior researchers found the positive influence of corruption on economic development. For instance, the study made by Khan et al (2020), postulated corruption and economic growth from 2002-2017 using Fixed Effect Model (FEM), Random Effect Model (REM), and robust least square. Empirical findings revealed that in developing South Asian countries corruption is working like grease and enhancing economic growth. Ekone and Amaghionyeodiwe (2020), investigated corruption and economic output employing error correction and the Granger causality tests. The findings showed the presence of a long-run association amid the level of sleaze and economic progression. Further, corruption has a positive but not statistically significant effect on the economic growth of Nigeria during the study period. Likewise, Chakravorty (2019) studied corruption and economic growth. The result displayed that corruption exerts a positive but small impact on economic growth. Sharma and Mitra (2019) examined corruption and economic development from 1996-2015 using the Generalized Method of Moment (GMM) Model. The outcome suggested the positive impact of control of corruption on the economic output. Thus, the result supported Sand the Wheels views at the cumulative level as well as for minor and middle-income nations. Cabaravdic and Nilsson (2017) studied corruption and economic growth utilizing panel data techniques. Findings indicated that corruption has a positive influence on Real Gross Domestic Product (GDP) growth in Southern Europe. Similarly, a study made by Muzurura (2017) examined corruption and economic development using multivariate regression. The study showed that corruption indeed influences the economic growth of Zimbabwe during the study period.

On the other hand, various empirical studies found a negative influence of corruption on economic growth. To illustrate, a study made by Antwi et al (2020), postulated corruption and economic growth from 1984-216 Auto-Regressive Disturbed Lag (ARDL) approach. The outcome revealed that corruption is negatively associated with economic growth. Miloud et al (2020) examined corruption and economic output from 2003 to 2017 utilizing dynamic panel and GMM models. The result showed that there is a negative and moral upshot of bribery on the economic evolution in Arab countries, whereby increasing the corruption by one degree will result in a decline of GDP by 0.04 percent. Likewise, a study made by Klaus and Niklas (2019) investigated corruption and economic output from 2012-2018 using a dynamic panel model. Findings showed that corruption is negatively affiliated with economic growth. Alfade (2019) examined corruption and economic growth from 1999-2016 utilizing two stages least squares. The estimated results showed the adverse influence of corruption on economic growth is robust for nations with corruption levels above the threshold of 80 percent.

Awan et al (2018) studied corruption and economic development from 1996-2014 using the panel regression technique. Empirical findings displayed that corruption exerts

an adverse impact on economic growth which is according to theory. Tach et al (2017) postulated corruption and economic growth from 2004-2015 employing the GMM model. The findings revealed that corruption is a hindrance to the economic growth of those Asian countries. Equally, Anh et al (2016) examined corruption and economic development using a simple regression model. Empirical findings showed that corruption decreases economic growth in Vietnam. Agostino et al (2016) postulated corruption and economic output utilizing dynamic panel data. The result confirmed the negative influence of corruption on the economic growth in Africa during the study period. Moreover, the study made by Nwankwo (2014) examined corruption and economic development using the granger and regression technique. The study demonstrated that the level of corruption in Nigeria over years has a significant negative impact on the economic growth of Nigeria. Farooq et al (2013) investigated corruption and economic output from 1987-2009 utilizing unit root and cointegration tests. The study found that corruption impedes the economic growth of Pakistan during the study period.

III. DATA AND THE MODEL OF SPECIFICATION

The data used in this study were obtained from the World Development Indicators (WDI). The dependent variable is economic growth which is measured as the proxy of gross domestic product, while the independent variable is corruption. Also, other explanatory variables such as regulatory quality, trade openness, and foreign direct investment as a percentage of GDP were collected from WDI. Further, the scope of the study is from 2013 to 2017.

Nevertheless, most of the prior researchers utilized both cross-sectional and panel data to forecast the experiential growth models. These simulations were by and enormous removed from the theoretical framework of Barro (1991) and Mankiw et al (1992). Indeed, in this framework, economic progression momentously is contingent on the preliminary level of income per capita, while most of the current studies integrate other indicators including regulatory quality, trade openness, and foreign direct investment. However, ensuing the conservative growth literature and modern empirical literature, such as Swaleheen (2011), on bribery and growth nexus, we instigate with an empirical model of economic development. The explanatory variables which may influence the economic growth are deliberated previously. Thus, to specify our structural econometric model, we first extend the traditional cross-section model into a panel data model as follows:

$$Growth_{it} = \beta_0 + \beta_1 lRQ_{it} + \beta_2 LFDI_{\cdot it} + \beta_3 LEXP_{\cdot it} + \beta_5 LIMP_{it} + \mu i + \varepsilon_{it}$$

Where growth is GDP progress rate proxy by growth in income per capita of a nation I in period t. regulatory quality, foreign direct investment, export, and import are explanatory variables, and both growth rate and other explanatory variables are log form to obtain a reliable outcome. Moreover, µ is an unobserved country fixed effect, and Ɛ is an undetected state fixed effect.

IV. RESULT AND DISCUSSIONS

The following table deliberates the dependent and independent variables and other control variables utilized in this study.

Table 1: Data Description

Indicator	Abbreviation	Definition	Source
Corruption	CC	Log of control of corruption(range 0-100)	WGI(2017)
Economic Growth	GDP	Log of GDP per capita(constant 2010 US$)	WDI(2017)
Regulatory Quality	RQ	Log of regulatory quality(range 0-100)	WGI(2017)
Export	EXP	Log of export(% of GDP)	WDI(2017)
Import	IMP	Log of import(% of GDP)	WDI(2017)
Foreign Direct Investment	FDI	Log of FDI(% of GDP)	WDI(2017)

Source: The Authors

Nevertheless, we also performed descriptive statistics and variance inflation factors to obtain accurate and reliable results. Therefore, the outcomes are reported in the next table.

Table2: Descriptive Statistics and Variance Inflation Factor

Variable Name	VIF	Mean	Minimum	Maximum
LCC	2.56	1.16	0.15	1.61
LRQ	4.67	1.34	0.64	1.67
LEXPT	3.77	1.11	0.88	1.30
LIMPT	3.09	1.34	1.04	1.52
LFDI	1.39	0.39	0.01	0.75

Notes: LCC is the log of control of corruption; LRQ is the log of regulatory quality; LEXP is the log of export; LIMP is the log of import and LFDI is the log of foreign direct investment.

Source: Authors Compilation from WDI database.

Table 2 demonstrate descriptive statistics and variance inflation factor and based on the outcome of the variance inflation factor we can observe the absence of multicollinearity problem among the explanatory variables since most of the values are less than 10 percent. According to Farrar and Glauber (1967) stated that if the value is below ten percent it shows the absence of multicollinearity issue among the explanatory variable. Indeed, as we have discussed previously the result of the variance inflation factor proofs the absence of multicollinearity issue in our study. On the other hand, descriptive statistics demonstrate on average value among countries foreign direct investment holds the least value which is 0.39 while the control of corruption outperformed the rest of the indicators as indicated in the great meant which is 1.16.

Contrarily, it is essential to perform various other econometric tests before discussing the empirical results. For instance, we run a statistical test to select the most suitable method in our model, by performing the Hausman test to choose among

random effect and fixed-effect model. The outcome of the test indicates an insignificant p-value which shows the appropriateness of the random effect model in our study. Moreover, we also run the Langrangian Multiplier (LM) test to ensure the accuracy of the Hausman test. The LM test is significant this indicated that the random effect model is more accurate than the fixed effect model in our sample. Therefore, the next table documents the regression results.

Table 3: Regression Fallouts

Items	Random Effect Model
Constant	-1.0091(0.386)
Independent Variable	
Log Control of Corruption(LCC)	-0.6407 (0.033) **
Control Variables	
Log Regulatory Quality(LRQ)	-1.0014(0.025)**
Log Foreign Direct Investment(LFDI)	-0.6436(0.175)
Log Import(LIMP)	1.7276(0.066)*
Log Export(LEXP)	-0.0950(0.933)
R^2	0.4931
Observation	25
Hausman Test	0.0185
Langrangian Multiplier Test (LM)	0.0000

Source: Authors compilation from WDI database.

Table 3 highlights the influence of corruption on the economic development of the sample of East African countries. For instance, the control of corruption variable is statistically significant and has a negative coefficient at a level of 5 percent. Therefore, this indicates that one percent decline of control of corruption will lead to -0.6407 percent enlargement of economic growth, and this is in line with the study made by (Antwi et al 2020; Miloud et al 2020; Klaus and Niklas 2019; Alfade 2019 and Awan et al 2018). Various reasons could cause the failure to control the corruption in East African countries and generally the whole content of Africa. Firstly, government officials highly practice corruption and this encourage other entities to perceive corruption as a source of income, therefore every person is eager to make money by any means without transparency and accountability. Therefore, the world transparent organization ranks East African countries as the most corrupted countries in the world. Next, failure for implementing rules and regulations and inefficient governance encourage many individuals to practice corruption in their daily life therefore such scenario not only harm the economic progress, but also the social and environmental aspects, and that is why most of the countries in our sample face a tremendous challenge including, lower employment, high external debt, high poverty level, and inefficient institutions, ineffective productivity, low export, and fragile economic developments. According to the 2019 Global Corruption Barometer –Africa more than half of the citizen in the continent think implant is getting nastiest and their regimes are doing a depraved job at tackling the iniquity. Thus, reducing the level of corruption could ease those stated challenges and encourage foreign investors to invest in the East African countries.

On the other hand, one of the explanatory variable used in this study is the regulatory quality which is statistically significant at a level of 5 percent, and have a negative coefficient. Thus, decreasing regulatory quality by one percent will result in a -5.2238 proliferation of economic output. This result is according to previous studies made by (Stinjs 2005; Alexeev and Conrad 2009 and Cotet and Tsui 2013). While the imported variable is positive and statistically significant at level 10 percent, therefore this indicates that a one percent increase for import will lead to 1.7276 amplifications for economic growth. This is in line with the prior empirical study made by (Tong 1995; Frankel and Romer 1999; Liu 2001). Contrarily, both export and foreign direct investment are insignificant and this could be explained by lower productivity, lack of modern technology and inefficient government regulation, and the absence of transparency and accountability when it comes to law enforcement.

V. CONCLUSION AND POLICY INFERENCES

Various studies investigated the link between corruption and economic evolution empirically and theoretically, and they found mixed findings either the adverse impact of bribery on the growth or indicating growth proliferation influence of corruption. Thus, this study mainly focuses on the country's panel data set particularly the sample of East African countries. Our outcome indicates the negative influence of corruption on the economic output, and the result assumes a realistic one since most of the sampling nations practice corruption highly in both the public and private sectors. Also, the absence of transparency and accountability harm both the social and economic aspect. Therefore, it's necessary to introduce the quality of control to increase the growth significantly, and implementing effective and efficient anti-corruption mechanisms at a wider range could boost economic development significantly, and also implementing a robust system that holds accountable each individual that practice bribery.

Moreover, it's essential to introduce policy interventions that promote the anti-corruption act and qualitatively in rich. Contrarily, the regulatory quality variable harms the economic development, and this could be attributed to the ineffective regulatory system and lack of regulation that impacted not only the economic growth but also various other sectors. Thus, the countries in the sample need to introduce a reliable and transparent regulatory system that encourages foreign investors and facilitates higher market share on the global stage. While import variable is positive and statistically significant which indicate the dependency of East African countries for importing goods and service that significantly contribute the economic development. Therefore, to overcome

such a scenario the governments of those countries are required to encourage local production and stimulation of export capacity to obtain a higher market share at the international level. Nevertheless, both foreign direct investment and export performance are insignificant, and major causes of this could be lack of sufficient production capacity, absence of modern technology, ineffective regulation, and high corruption practice.

Nevertheless, we encourage the introduction of the anti-corruption mechanism at a large scale to tackle the corruption practice, while harsh monitoring is vital and the penalty of various stages should be familiarized antagonistically. Bribery not only impacts performance negatively but also results in a greater loss of resource abundance and loss of government income which in turn lowers economic output. Therefore, to boost various macro-economic indicators and a company's performance corruption must be eliminated so that the demand could not be capitalized for very few individuals. Also, the inducement policy reward must be introduced to give the best performers with zero records of corruption practice.

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