RETRACTED: Foreign Assistance, Sustainable Development, and Commercial Law: A Comparative Analysis of the Impact of Corruption on Developing Economies

Ying Yu[1], Huang Lihong[2], Salma Mouneer[3]*, Hina Ali[3] and Arshad Munir[4]

[1]Jilin University School of Law, Changchun, China, [2]Department of Law, Fujian Police College, Fuzhou, China, [3]Department of Economics, The Women's University, Multan, Pakistan, [4]Khawaja Fareed University of Engineering and Information Technology, Rahim Yar Khan, Pakistan

The essential purpose of this research is to investigate the relationship between foreign assistance and economic growth. It also analyzes the role corruption might play in influencing this relationship in aid-recipient countries that have similar real gross domestic product (GDP) per capita, but different development patterns. An analysis is performed on specific samples from 2000 to 2019. The model is split into three sections for this purpose: i.e., all developing economies, sub-Saharan Africa (SSA), and the most corrupt countries from regions other than SSA. The difference generalized method of moments (GMM) panel framework is used for empirical analysis. The study concludes that foreign aid does not result in encouraging and significant changes in overall economic growth in developing economies. By contrast, corruption has a powerful impact on foreign aid effectiveness. It is also observed from the analysis that SSA economies receive high levels of foreign assistance, but still cannot extract maximum benefit due to various economic and social problems. Furthermore, foreign assistance effectiveness is almost insignificant in most corrupt economies from other regions.

Keywords: sustainable development, foreign assistance, generalized method of moments, sub-Saharan African, corruption impinge

1 INTRODUCTION

Official development assistance (ODA), conventionally known as foreign assistance, is a flow of financial resources from advanced to developing nations and is considered necessary for developing economies to flourish (Bowen, 1995; Kosack, 2003; Karras, 2006; Chansomphou et al., 2011; Tiwari and Kalita, 2011). The exponents of foreign assistance believe that the inflow of external finance is essential in attaining the development objectives of underdeveloped countries, because additional resources make it possible to reach growth targets. It is thus imperative to look at the most dominant and disadvantageous feature of developing economies, i.e., corruption. Corruption has many results, such as political instability, weak governance, and poor institutional quality, and takes many forms, such as fraud, bribery, and illegal favors to obtain a high profile in politics. Corruption badly affects aid effectiveness. When donors grant assistance to developing economies with high corruption levels, the aid is less effective since the resources are used for personal and not social benefit.

Corruption is a deadly disease for the development of any society. Corruption is about offering wealth to a person who has authority, so that he or she will decide in one's favor or against one's opponent. When justice is done, and people are not afforded their rights in a just manner, then of course the market for bribes and corruption becomes heated. In such a society, where corruption is rampant, the means of welfare are never effective and the society cannot be stable. Corruption is strongly condemned by the existing religions of the world also. For example, Islam considers corruption a grave sin. Both the bribe-taker and the bribe-giver are condemned to hell.

According to Svensson (2000), the inflow of aid affects a developing economy negatively because these resources are diverted from productive to rent-seeking activities by people from rival social or ethnic groups from the elite class of the economy. These rent-seeking activities can facilitate the carrying of aid funds and other public funds to specific groups. Aid inflows become inefficient due to such corrupt activities. This study thus deals with a crucial economic issue in developing economies: the role of corruption in foreign aid ineffectiveness, as it is considered the primary determinant of such ineffectiveness. Donors have provided massive amounts of desperately needed foreign aid to developing countries, yet have been unable to produce significant results (Tang and Bundhoo, 2017; Sothan, 2018; Yiew and Lau, 2018). In such circumstances, commercial law makes it possible to benefit from foreign aid. Commercial law is usually referred to as trade that governs the rights, relationships, and actions of people and businesses involved in commerce, merchandising, marketing, and sales. The demand for expertise in this subject has risen dramatically due to globalization. Economic integration is supported by a comprehensive interpretation and application of commercial law, which allows poorer countries to negotiate better terms in international or bilateral trade agreements, and resource-rich countries to handle substantial foreign capital inflows. In addition, commercial law capacity supports investment in areas where it is limited, by strengthening the overall business environment.

Some stylized facts about foreign assistance, corruption, and economic growth across sub-Saharan Africa (SSA) and the most corrupt economies from regions other than SSA are discussed here. The SSA has received the most assistance, but remains the most impoverished area in the world. Easterly and Easterly (2006) found that existing aid organizations have spent tremendous amounts of money on SSA, but have achieved minimal poverty reduction and growth rates. Africa is still facing vast humanitarian, economic, and institutional problems despite receiving this considerable foreign assistance. The 2016 African elections reveal the region's corruption trends. In nations such as Ghana and South Africa, citizens expressed frustration with their governments' corruption records in the voting polls. In the Democratic Republic of Congo and Gambia, electoral democracy is tremendously challenged because of corruption. Cape Verde was the most improved African country in the 2016 index, holding democratic presidential elections in 2016, with the independent observer teams marking those elections as "exemplary." Other major African nations, including South Africa, Tanzania, Nigeria, and Kenya, failed to enhance their index ratings significantly. According to the Transparency International report of 2016,

Burundi, Cameroon, Congo Dem. Rep., Congo Rep., Gambia, Kenya, Madagascar, and Nigeria are corrupted economies with a corruption perception index score of less than 30. **Figure 1** shows corruption trends in SSA for different years.
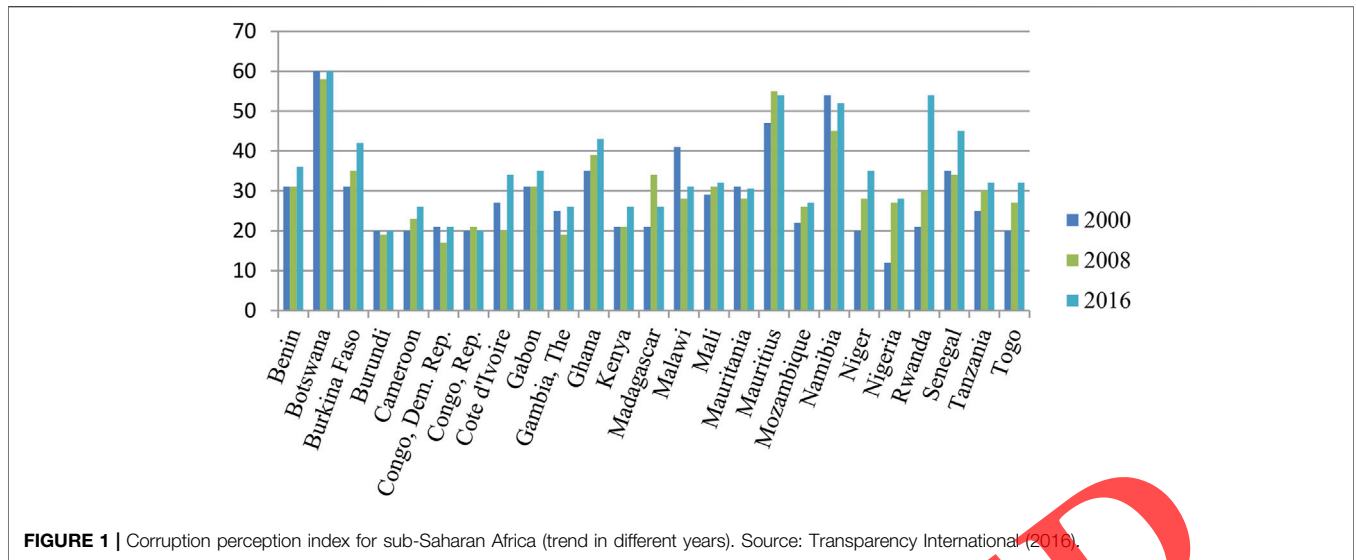
Figures 2, **3** present foreign assistance and growth rate trends in sub-Saharan African countries. The growth rate was high in 2004, then declined to 2006, before rising in 2007, and thereafter declining again with minor rises in 2010 and 2013.

Most South Asian and Southeast Asian countries scored below 40 (out of 100) on the corruption perceptions index. With a score of 21, Cambodia is the most corrupt nation on the list in Southeast Asia. With 29 and 26, respectively, Nepal and Bangladesh are both extremely corrupt nations in South Asia. The annual corruption perceptions index, published by Transparency International (TI), listed Pakistan as number 116 out of 176 nations in 2016. The rank shows the country's elevated rate of corruption. With the exception of Tunisia, Middle Eastern and North African (MENA) nations did not have much better outcomes, according to the 2016 corruption perception index report. Countries included in the research from the MENA region are Algeria, Egypt, Iran, and Morocco. Corruption is a significant issue in the European and Central Asian region also. Governments are distorting the system to their benefit in EU nations. Bribery rates in many EU member states are significantly high: in Tajikistan (50%), Moldova (42%), Azerbaijan, the Kyrgyz Republic, and Ukraine (38%). According to the corruption perception index report of 2016, most Latin American and Caribbean countries are highly corrupted also. Politicians are involved in political corruption, and others related to public services indulge in bribery. Bribery is discovered to be the most prevalent in the Dominican Republic. **Figure 4** shows corruption patterns in most corrupt developing economies.

Foreign aid is granted to developing economies that they might benefit from it, improve their economic, social, and political conditions, and obtain a better living standard. **Figure 5** presents foreign aid allocated to different regions. The figure shows that the Middle East and North Africa receive a significant share of foreign assistance. The second most crucial aid-recipient region is South Asia. At the same time, small portions of foreign aid are allocated to the other areas.

Figure 5 presents net official development assistance for different regions. **Figure 6** illustrates prominently that the growth rate for all regions was declining in 2009. In the late 2000s and early 2010s, the Great Recession (2007–2013) was a period of overall decrease in world financial markets. The International Monetary Fund considered it the worst global recession since the 1930s (the Great Depression). The Great Recession led to scarcity of precious resources in the market economy and the fall of the world economy's financial industry (i.e., banks).

This research aims to probe the effectiveness of foreign assistance in selected economies empirically as panel data. The study looks into the influence of corruption in developing countries in order to determine how effective foreign aid is in supporting economic growth. First, since foreign assistance effectiveness is highly related to corruption, we have performed a comparison for developing economies. The analysis is then split into two categories to examine the

FIGURE 1 | Corruption perception index for sub-Saharan Africa (trend in different years). Source: Transparency International (2016).

FIGURE 2 | Net ODA received (% of GNI) in sub-Saharan Africa. Source: World Development Indicator (2016).

effectiveness of foreign aid in significant detail: analysis of SSA and analysis of the most corrupt economies from regions other than SSA.
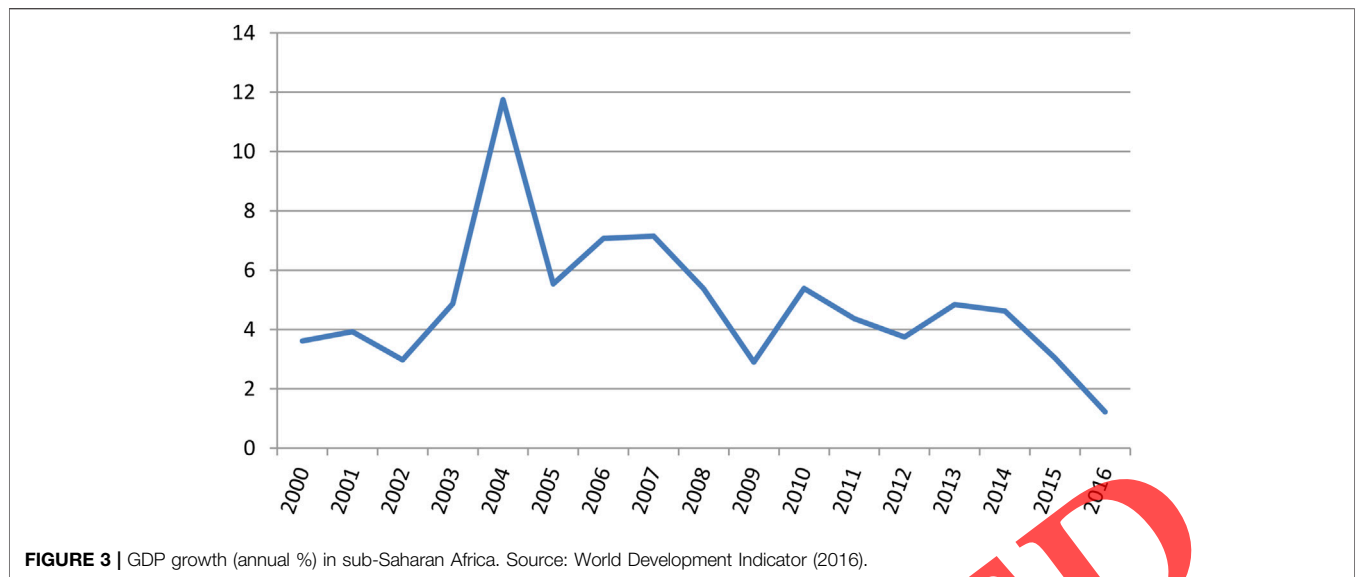
The rest of the study is divided as follows: the next subsection highlights some critical literature regarding the area of study; **Section 2** presents data and a methodological explanation; results and discussion of the empirical analysis are presented and explained in **Section 3**, and the conclusion and the implications of the study based on the empirical outcomes are presented in **Section 4**.

1.1 Literature Review

The advance of assistance-growth programs can be screened using the "Harrod-Domar model," which is explained by Harrod (1939) and Domar (1946). Rostow (1960) then took an introspective look at the role of foreign assistance in the growth of the efficient use of domestic resources. Following the

Harrod-Domar model, Chenery and Strout (1966) presented the "two-gap model." Pesmazoglu (1972) explored the association between assistance and growth and stated that the growth rate of GDP is relatively significant and positive for overseas capital inflows. Durbarry et al. (1998) examined the effect of foreign assistance on the development of many developing nations. Empirical results show that higher inflows of foreign assistance have a favorable impact on less developed countries with a stable macroeconomic policy setting. A significant body of literature is reviewed on the link between foreign assistance and growth. There is considerable empirical literature on aid-growth relationships. Studies that find a beneficial impact of foreign assistance on economic growth include Bowen (1995), Burnside and Dollar (2000), and Karras (2006).

Bowen (1995) probed both the direct and indirect association between assistance and growth and indicates that the nature of the association differs across the stages

FIGURE 3 | GDP growth (annual %) in sub-Saharan Africa. Source: World Development Indicator (2016).

FIGURE 4 | Corruption trends in most corrupt economies. Source: Transparency International (2016).

of economic development in the regions receiving aid. Burnside and Dollar (2000) claimed that assistance can function, but only in recipient states under favorable political and institutional circumstances. Finally, Armah and Nelson (2008) discovered the impact of foreign assistance on the development of sub-Saharan African countries. They identified a significant foreign assistance-growth association, with assistance functioning as a growth-boosting factor in SSA.

Chansomphou et al. (2011) explored the effect of foreign assistance on Lao PDR's long-term per capita income and short-term income growth. Empirical findings have shown that foreign aid contributes significantly to long-term per capita income and leads to instant development in the short term. Furthermore, Karras (2006) and Kosack (2003) argued that

foreign assistance has a beneficial, lasting, and statistically significant effect on economic growth.

Some studies presented here found a negative or insignificant impact of foreign assistance on economic growth in developing economies. Abd El Hamid (2013) analyzed the macroeconomic impact of aid in Egypt, where it was expected financial aid from Arab countries and global donors would minimize the country's economic insufficiency. The findings show that funding in Egypt does not promote development; it harms development in the short-term and long-term. This adverse outcome is connected to a poor policy environment. Moreira (2005) discovered that assistance has less impact on short-term development than long-term development. The study concludes that researchers should not ignore the time lags in the aid-growth relationship. Ouattara (2006) found a negative impact of
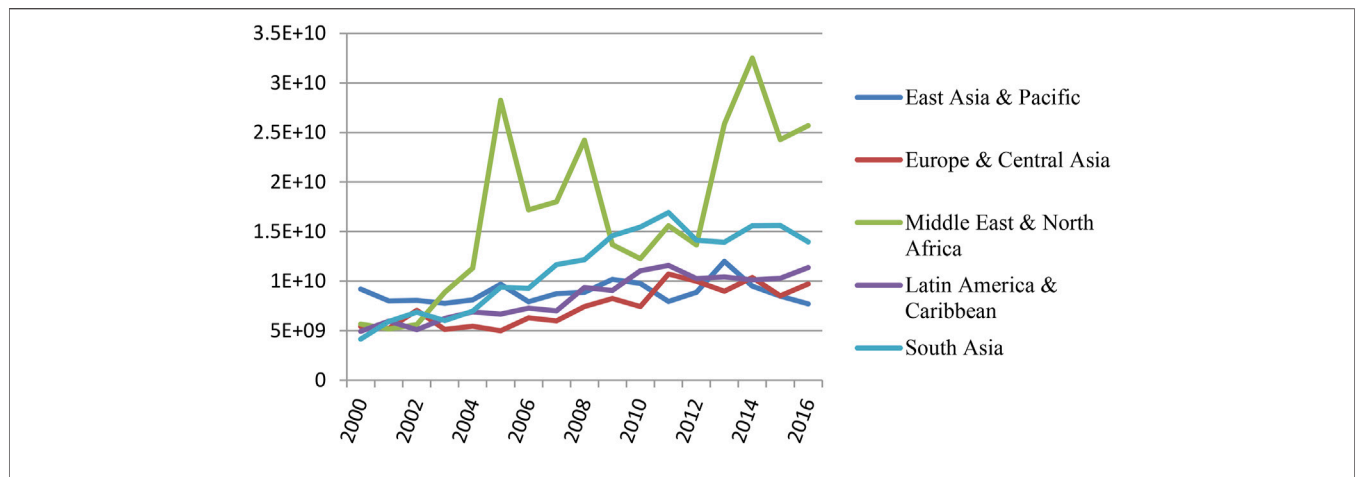
FIGURE 5 | Net Official Development Assistance in different regions. Source: Penn world table 9.0 (2016).
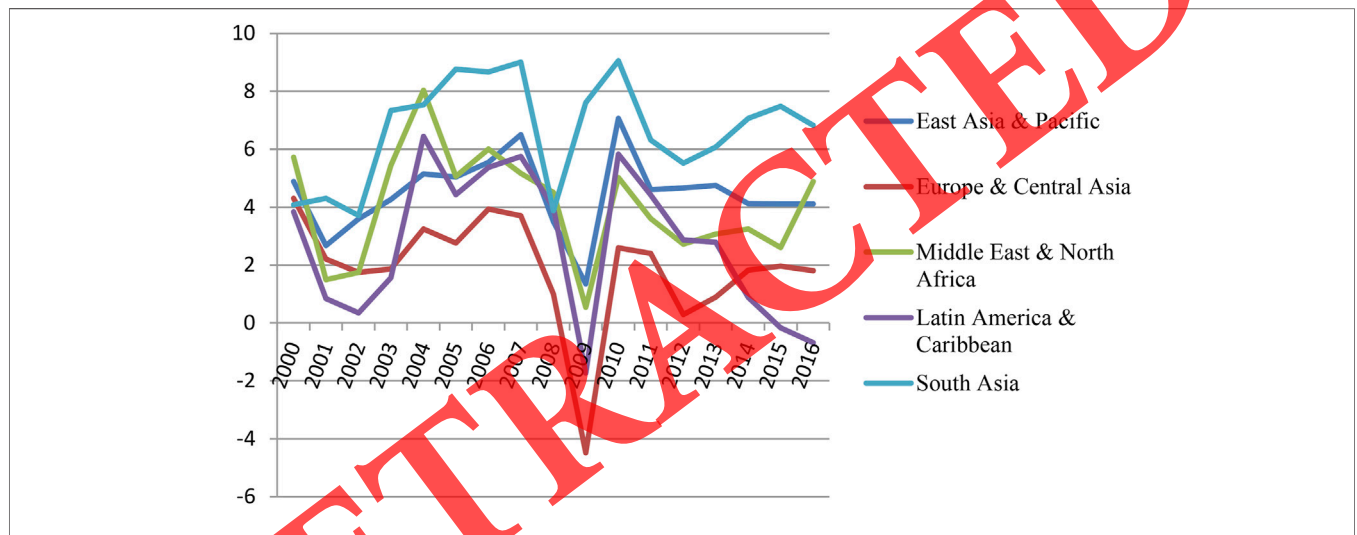
FIGURE 6 | GDP growth (annual %) in different regions except SSA. Source: World Development Indicator (2016).

assistance flows on Senegal's economic growth because the economy utilized foreign funds for debt servicing, not for developmental purposes. Rajan and Subramanian (2008) also found no clear evidence of a beneficial association between assistance and development.

The literature also provides some critical studies exploring the reasons for foreign aid ineffectiveness in developing economies. Blackburn and Forgues-Puccio (2011) evaluated the economic development impact of foreign aid when corruption undermines the quality of governance. Their research showed that bribery slows economic growth and decreases the efficiency of assistance programs. Bobba and Powell (2007) concluded that aid extended to non-allies has a powerful beneficial effect on the economic growth of recipient nations, while assistance for political allies has an adverse impact.

Ekanayake and Chatrna (2010) stated that the impact of foreign assistance on the rate of development varies based on the country's income level, period, and region. Hodler and Knight

(2011) discovered that foreign assistance efficiently encourages economic growth in ethnically homogeneous nations and that greater ethnic fractionalization in fractionalized nations decreases assistance effectiveness. Economides et al. (2008) and Hodler (2007) noted that foreign assistance benefits growth by enabling higher public spending, and adversely impacts growth by promoting higher rent-seeking intensity. Bonell and Meyer (2015) found that corruption is widely acknowledged as one of the most significant impediments to the development of international trade today. They discovered that while commercial contracts can be implicated in corruption, corruption can be controlled through commercial laws.

The literature has identified different issues regarding foreign aid effectiveness, but there are some gaps when it comes to evaluating the role of corruption, particularly in developing economies.

The present study attempts to differentiate foreign aid effectiveness for different regions. Similarly, the economies of

Africa differ from those of Asia. This research explores the efficacy of foreign assistance for economic growth by concentrating on the level of corruption in these economies as it affects institutional performance.

2 DATA AND METHODOLOGICAL DISCUSSION

The primary motive of this research is to explore the effectiveness of foreign assistance in developing economies. In order to observe the consequences of foreign aid in the context of corruption in developing economies, the role of corruption is also included in the research. The analysis is further extended for sub-Saharan African economies and the most corrupt economies from different regions other than SSA.

For empirical analysis, the sample consists of a panel dataset for 61 developing countries from 2000 to 2019. The sample for sub-Saharan African countries consists of 25 countries, while data for the most corrupt economies from regions other than SSA consists of 30 countries. The main data sources are the world development indicator (World Bank), Penn world table 9.0, the world governance indicator (WGI), and Transparency International (TI).

The panel causality test developed by Dumitrescu and Hurlin (2012) is used in this paper. The study will use panel causality tests to understand causality among dependent and independent variables better. For heterogeneous panel data structures with fixed coefficients, this type of test is a clear structure of Granger's non-causality test version (Granger, 1969). This study follows the following form:

$$Y_{i,t} = \alpha_i + \sum_{k=1}^{k} \gamma_i^{(k)} y_{i,t-k} + \sum_{k=1}^{k} \beta_i^{(k)} x_{i,t-k} + \varepsilon_{i,t} \qquad (1)$$
$$i = 1, 2, \ldots . N: t = 1, 2, \ldots . T$$

where x and y are two stationary variables determined for N individuals across T periods in this context. $\sum_{k=1}^{k} \beta_i^{(k)}$ effects α_i, along with N individuals, are assumed to be constant in the time dimension condition. Furthermore, for the whole cross-section of the panelized data under the survey, the lag orders of K are considered to be homogeneous. Moreover, the regression coefficients $\gamma_i^{(k)}$ and $\beta_i^{(k)}$ are autoregressive parameters that are allowed to vary between groups. The null hypothesis is considered to have no causality relation for x and y in the panel data in this testing approach. As a result, if H_o is rejected, the study will conclude that there is causality between x and y.

In the case of panel data models, it is worth testing the framework to see whether cross-sectional dependence exists before finding the stationarity of the series. As a result, the hypotheses for assessing cross-sectional dependence are as follows:

H_o: Cross-sectional dependence.
H_1: No cross-sectional dependence.

A first-generation unit root test will be used if H_o is rejected, while a second-generation unit root test process will be used if H_o

is accepted. For example, Pesaran (2004) has proposed the following test:

$$CD = \sqrt{2T/N(N-1)} \sum_{i=1}^{N-1} x \sum_{i=1}^{N} x \rho_{ij} \qquad (2)$$

where ρ_{ij} is the sample value of the pair-wise correlation of the residuals. As previously noted, Pesaran (2004) used the CD test to investigate cross-sectional dependence when N is greater than T. Therefore, the aggregate value of correlation coefficients, including cross-sectional residuals, is used in this sort of test.

It is known that a stationary series has a steady mean, steady variance, and steady auto-covariance for each lag, which is why the concept of non-stationarity is essential. If the series is non-stationary, the difference should be taken until the series becomes stationary. However, the long-term data may be lost by taking differences to make the series stationary. It is, therefore, preferable to use a variable in its initial integration order. In this research, the Fisher ADF test, Harris-Tzavalis test, the Im-Pesaran-Shin (IPS) test, and Levin, Lin, and Shin (LLC) panel unit root test are used to test non-stationarity.

A dynamic panel data (DPD) estimation methodology is employed to analyze the foreign aid effectiveness in the presence of corruption in developing economies. Panel data is helpful in this situation since it includes information from multiple dimensions, periods, and cross-sections. It possesses the properties of an individual in different temporal units. Panel data has a higher degree of freedom and sample variation than cross-sectional data. Estimates are also more efficient when using panel data (Greene, 2003). However, panel data infringe the assumptions of measurement errors, endogeneity, and omitted variables bias. One way to remove endogeneity is to use the lag value of the regressand as a regressor. In addition, the method brings up the issue of autocorrelation in the concerned model. One technique to get a reliable estimator is to use an instrumental variable. Economic variables are primarily complex and dynamic, and the lag of the regressand is used to regulate them. Therefore, heterogeneity is acceptable in dynamic panel data. The structural design of dynamic panel data is

$$Y_{i,t} = \alpha_i + \beta Y_{i,t-1} + \gamma X_{i,t} + v_{i,t} \qquad (3)$$

where $t = 1, \ldots, T$ and $i = 1, \ldots, N$

In this case, fixed and random effect models lead to biased estimators and generate heterogeneity bias in the model. The lagged variable represents the dynamic aspect of panel data. Autocorrelation is generated by applying lagged variables in the fixed-effect model. However, heterogeneity is reduced. The DPD (dynamic panel data) technique is generally regarded as the work of Arellano and Bond (1991), but they popularize the work of Holtz-Eakin et al. (1988). Arellano and Bond's suggested GMM estimation method is used to estimate β coefficients of all equations. Arellano and Bond (1991) proposed a technique that could exploit all feasible tools. Using the generalized moments method (Hansen, 1982) GMM, they acquired estimators using the moment conditions produced by the lagged levels of the dependent variable with Δv_{it}. These estimators are called difference GMM estimators. Similar to all

No.	Null hypothesis	Alternative hypothesis
1	H_0: ODA has positive impact on GDP	H_1: ODA has negative impact on GDP
2	H_0: GFCF has positive impact on GDP	H_2: GFCF has negative impact on GDP
3	H_0: HC has positive impact on GDP	H_3: HC has negative impact on GDP
4	H_0: TRADE has positive impact on GDP	H_4: TRADE has negative impact on GDP
5	H_0: PSI has positive impact on GDP	H_5: PSI has negative impact on GDP
6	H_0: CORRP has negative impact on GDP	H_6: CORRP has positive impact on GDP

instrumental variables regressions, GMM estimators are unbiased. Arellano and Bond (1991) compared the performance of GMM, OLS, and WG estimators. The econometric technique used is difference GMM estimation. GMM methods reduce the changes in serial correlation, heteroskedasticity, and endogeneity problems. First, the unit root test is employed to panel data to test for stationarity. In this research, in panel data based on the Dickey-Fuller unit root test, the Levin, Lin, and Chu (LLC) panel unit root test is practiced to test non-stationarity (Levin et al., 2002). Arellano and Bond (1991) suggested a test for detecting serial correlation in the disturbances. The Sargan test checks the validity of the subsets of instruments (Sargan, 1958).

The dynamic panel data model is used to evaluate the effect of foreign assistance on economic growth in developing economies. The model starts with a linear growth regression specification and then extends to account for the role of corruption in foreign assistance effectiveness. The central equation is

$$Y_{i,t} = \beta_y Y_{i,t-1} + \beta_x X_{i,t} + \beta_z Z_{i,t} + \mu_t + \nu_{i,t} \quad (4)$$

where the subscripts i and t depict countries and time, respectively. The variable y is the GDP growth rate, $X_{i,t}$ is official development assistance (ODA) as a proportion of GNI, and $Z_{i,t}$ is a vector of exogenous variables that could influence the growth rate. μ_t are time-fixed effects to capture the business cycle impacts, and $\nu_{i,t}$ is the error term.

According to empirical research on growth, growth in period t is permitted to rely on $Y_{i,t-1}$ to capture the convergence impacts, and therefore β_y is anticipated to be negative. To evaluate the effect of foreign assistance on economic growth, the term $X_{i,t}$ is included, and β_x is anticipated to be either positive or negative. The subset of the vector of the control variables $Z_{i,t}$ is chosen, based on their significance as determinants of economic growth, but also on their ability to influence the growth response to aid inflows. Considering the indicators derived from empirical research in this area, we include control variables in the vector: trade openness relative to GDP (TRADE) and a political stability index (PSI). The model also includes human capital (HC) and gross fixed capital formation (GFCF) as the main determinants of growth.

We construct some hypotheses to determine the association among concerned variables. **Table 1** represents the null and alternative hypotheses of the model.

So, the econometric model from **Eq. 4** can be written as

$$GDP_{i,t} = \beta_0 GDP_{i,t-1} + \beta_1 ODA_{i,t} + \beta_2 GFCF_{i,t} + \beta_3 HC_{i,t}$$
$$+ \beta_4 TRADE_{i,t} + \beta_5 PSI_{i,t} + \mu_t + \nu_{i,t} \quad (5)$$

The model is then extended to regression specification by including corruption (CORRP), measured by the corruption perception index (CPI), which may have an impact on aid effectiveness. **Equation 5** is the regression with corruption:

$$GDP_{i,t} = \beta_0 GDP_{i,t-1} + \beta_1 ODA_{i,t} + \beta_2 GFCF_{i,t} + \beta_3 HC_{i,}$$
$$+ \beta_4 TRADE_{i,t} + \beta_5 PSI_{i,t} + \beta_6 CORRP_{i,t} + \mu_t + \nu_{i,t} \quad (6)$$

where $CORRP_{i,t}$ represents corruption measured by the corruption perception index.

The economic growth rate is the dependent variable in this study, measured as the annual percentage growth rate of GDP. There is a need to discuss the intuitive symbol for each independent variable. Specifically, the endogenous growth model emphasizes the significance of resources (both physical and human) in fostering economic growth. Herzer and Morrissey (2011) used capital as the most significant factor influencing national production in their cross-country research on the efficacy of foreign aid. For economic growth, human capital is also essential. For instance, by using school education as a proxy for human capital, Barro (1991) discovered that economic growth is linked favorably to original human capital. Both physical and human capital anticipate beneficial financial development effects.

Trade policy is represented by a trade openness measure, which is [(imports + exports)/GDP] (Burnside and Dollar, 1997; Muhammad and Qayyum, 2011). Trade openness is often postulated to increase development through multiple channels, such as overseas access to sophisticated technology, catch-up opportunities, enhanced access to various manufacturing inputs, and wider markets that increase domestic production effectiveness through enhanced specialization. It is anticipated that trade openness will have a beneficial impact on economic growth. It has been discovered that political stability or good governance is necessary for foreign aid to promote development for least developed countries at least (Islam, 2005). The political stability index (PSI) is also expected to be positive for economic growth.

Based on the empirical literature, the impact of foreign aid on economic growth is ambiguous. It can be positive or negative, or insignificant, depending upon different aspects of economies.

Corruption has a detrimental effect on economic growth. It also plays a crucial role in determining foreign aid effectiveness. It

TABLE 2 | Summary statistics of data for developing economies.

Variables	No. of observations	Unit of measurement	Mean	St. dev.	Min.	Max.
GFCF	1,220	% of GDP	8.094	15.02	−50.5	114.34
HC	1,220	Index	2.08	0.55	1.07	3.32
ODA	1,220	% of GNI	5.32	6.72	−0.253	62.18
TRADE	1,220	% of GDP	72.89	32.04	20.96	220.4
CORRP	1,220	Index	3.11	0.9	0.4	6.5
GDP	1,220	Annual rate	4.47	3.52	−14.8	33.74
PSI	1,220	Index	−0.553	0.764	−2.81	1.2

TABLE 3 | Correlation matrix.

Variables	GDP	GFCF	HC	ODA	PSI	TRADE	CORRP
GDP	1						
GFCF	0.36	1					
HC	−0.015	−0.12	1				
ODA	0.064	0.131	−0.416	1			
PSI	0.019	0.064	0.183	−0.025	1		
TRADE	0.028	0.057	0.252	−0.073	0.338	1	
CORRP	0.02	−0.018	0.301	−0.258	0.496	0.217	1

TABLE 4 | Test results for multicollinearity.

Variables	VIF	Tolerance = 1/VIF
GFCF	1.31	0.76
HC	14.25	0.07
ODA	1.56	0.64
PSI	1.53	0.66
TRADE	6.84	0.146
CORRP	11.87	0.084

TABLE 5 | Results for cross-sectional dependence test.

Variables	CD test	p-value
GDP	25.643***	0.000
GFCF	11.56***	0.000
HC	152.7***	0.000
ODA	27.67***	0.000
TRADE	20.83***	0.000
PSI	0.976	0.329
CORRP	54.053***	0.000

*is significant at the rate of 10%. ** implies 5% significant. *** implies significant at 1%.*

may lead to foreign aid ineffectiveness and a reduction in economic growth. However, the literature also argues its growth-promoting effects as hypothesized by the "grease the wheels" theory.

3 EMPIRICAL RESULTS AND DISCUSSION

This section provides empirical results for understanding the aid-growth relationship in developing economies. The empirical analysis is further conducted explicitly for sub-Saharan Africa (SSA) and the most corrupt economies from regions other than SSA. **Table 2** shows the data statistics in summary form. The average values of all variables are shown in the table, together with their standard deviations, mean, maximum, and minimum values.

Tables 3, **4** show the results for correlation and multicollinearity among variables. A variance inflation factor (VIF) of more than four, or tolerance of less than 0.25 suggests the presence of multicollinearity, which requires additional inquiry. In addition, there is severe multicollinearity

that needs to be adjusted when the VIF is greater than ten or tolerance is less than 0.1.

As illustrated in **Table 4**, HC and CORRP show a VIF of more than 10. At the same time, other variables show negligible multicollinearity. In addition, to account for the multicollinearity issues, this research combines the GMM and the Granger causality approaches (see **Tables 7–10**).

Recent research suggests that panel data sets may be dependent on cross-sections. As a result, this study performed a cross-section dependence (CD) test, which is presented in **Table 5** below. Unfortunately, the p-value for the CD test for all variables except PSI accepts the null hypothesis, which means there is cross-sectional dependence in the panel series. To resolve this issue, GMM is employed for the estimation procedure.

The upper part of **Table 6** illustrates the results of various panel unit root tests with panel mean, whereas its lower part illustrates the results of various unit root tests with a time trend. Again, all variables are found to be stationary except HC. However, HC is found to be stationary when Fisher ADF and Lin-Levin-Chu unit root test with panel mean is employed.

TABLE 6 | Results for pane unit root test with mean and trend.

Variables	Fisher ADF	Harris-Tzavalis	Im-Pesaran-Shin	Lin-Levin-Chu
Pane unit root test with panel mean				
GDP	37.96*** (0.000)	0.153*** (0.000)	−11.274*** (0.000)	−10.861*** (0.000)
GFCF	42.86*** (0.000)	0.073*** (0.000)	−13.323*** (0.000)	−13.33*** (0.000)
HC	13.06*** (0.000)	0.966 (1.000)	−0.018 (0.493)	−9.89*** (0.000)
ODA	9.99*** (0.000)	0.414*** (0.000)	−5.726*** (0.000)	−6.51*** (0.000)
TRADE	2.85*** (0.002)	0.746*** (0.000)	−2.956*** (0.002)	−5.63*** (0.000)
CORRP	3.76*** (0.000)	0.755*** (0.000)	−1.963** (0.025)	−4.64*** (0.000)
PSI	5.09*** (0.000)	0.796*** (0.043)	−1.699* (0.045)	−8.303*** (0.000)
Pane unit root test with time trend				
GDP	34.399*** (0.000)	−0.003*** (0.000)	−13.11*** (0.000)	−10.4*** (0.000)
GFCF	36.457*** (0.000)	−0.031*** (0.000)	−14.59*** (0.000)	−13.773*** (0.000)
HC	−6.1055 (1.000)	0.804 (1.000)	7.61 (1.000)	0.627 (0.735)
ODA	16.168*** (0.000)	0.235*** (0.000)	−10.735*** (0.000)	−8.795*** (0.000)
TRADE	4.462*** (0.000)	0.542** (0.021)	−5.712*** (0.000)	−10.072*** (0.000)
CORRP	3.354*** (0.004)	0.481*** (0.000)	−7.261*** (0.000)	−7.312*** (0.000)
PSI	3.082*** (0.001)	0.579 (0.194)	−5.51*** (0.000)	−4.023*** (0.000)

*is significant at the rate of 10%. ** implies 5% significant. *** implies significant at 1%.*

TABLE 7 | Results of difference GMM for all developing economies.

Dependent variable: GDP growth rate				
No. of groups	61			
Variables	WOC		WC	
	β-coefficient	t-statistics	β-coefficient	t-statistics
GFCF	0.058***	3.04	0.07***	3.42
HC	2.06	1.03	0.378	0.17
ODA	−0.01	−0.17	−0.069	−1.14
TRADE	0.033*	1.49	0.046**	2.00
PSI	1.776***	2.35	1.145*	1.42
CORRP			−2.12***	−2.96
No. of instruments	34		64	
AR (1)	0.007		0.001	
AR (2)	0.071		0.412	
S-test	0.027		0.076	
H-test	0.133		0.456	

*is significant at the rate of 10%. ** implies 5% significant. *** implies significant at 1%.*

The GMM estimates are presented in **Table 7** for all developing economies. The model is estimated with two specifications. Firstly, to observe the effect of foreign assistance on economic growth in developing economies (WOC), and secondly, to observe the effect of foreign assistance on economic growth in the occurrence of corruption in developing economies (WC).

Table 8 presents the main findings for the estimation of β coefficients for **Eqs. 5**, **6** by using Arellano and Bond's (1991) difference GMM estimation methodology.

Tables 8, **9** present the estimates of β coefficients, particularly for sub-Saharan Africa and the most corrupt economies from other regions. Only the second lag is used as an instrument of the endogenous factors. A large amount of instruments causes the Sargan test (explained below) to be weak due to the lesser number of economies in my sample. The second lag is needed because the

present error term is not correlated. Generally, a second or deeper lag can be used to discover a helpful instrument, but using deeper lags decreases sample size. If the number of economies is sufficiently large, all available lags can be used as instruments (second and deeper lags) (Mileva, 2007).

Estimated results for **Eq. 5** show that gross fixed capital formation (GFCF), which is used as a proxy of investment, affects economic growth positively, even in corrupt situations. However, it is theoretically acceptable as an increase in investment leads to more production, more output, and increased market size (Edwards, 1992; Ali, 2015; Meyer and Sanusi, 2019). In developing economies, capital accumulation on a large enough scale to boost agricultural yields, manufacturing, forestry, mining, industry, and the development of health and educational institutions, highways, and railways leads to economic growth. In addition, capital

TABLE 8 | Results of difference GMM for sub-Saharan Africa.

Dependent variable: GDP growth rate

No. of groups	25			
Variables	**WOC**		**WC**	
	β-coefficient	t-statistics	β-coefficient	t-statistics
GFCF	0.032*	1.53	0.033*	1.53
HC	1.532	0.41	6.54*	1.49
ODA	0.052	0.81	0.044	0.66
TRADE	0.097**	1.88	0.112**	2.00
PSI	2.01**	1.77	1.78*	1.45
CORRP			−1.78*	−1.37
No. of instruments	61		61	
AR (1)	0.010		0.013	
AR (2)	0.810		0.758	
S-test	0.203		0.264	
H-test	1.000		1.000	

* is significant at the rate of 10% and ** implies 5% significant.

TABLE 9 | Results of difference GMM for most corrupt economies.

Dependent variable: GDP growth rate

No. of groups		30		
Variables	**WOC**		**WC**	
	β-coefficient	t-statistics	β-coefficient	t-statistics
GFCF	0.186***	4.70	0.184***	4.75
HC	−3.05**	−1.46	−1.01	−0.44
ODA	−0.145**	−1.92	−0.129**	−1.89
TRADE	0.036**	2.03	0.027**	1.61
PSI	−0.08	−0.02	0.44	0.69
CORRP			−1.49**	−1.76
No. of instruments	63		63	
AR (1)	0.001		0.001	
AR (2)	0.108		0.107	
S-test	0.276		0.345	
H-test	1.000		0.999	

* is significant at the rate of 10%. ** implies 5% significant. *** implies significant at 1%.

TABLE 10 | Results of pair-wise Granger Causality tests between variables and GDP.

Null hypothesis	W-stat.	Zbar-stat.	Prob.
GFCF does not homogeneously cause GDP	2.37871	−0.29351	0.7691
GDP does not homogeneously cause GFCF	3.51011	2.44438	0.0145
HC does not homogeneously cause GDP	2.66163	0.39114	0.6957
GDP does not homogeneously cause HC	1.75965	−1.79159	0.0732
ODA does not homogeneously cause GDP	3.07412	1.38933	0.1647
GDP does not homogeneously cause ODA	9.18447	16.1759	0.0000
PSI does not homogeneously cause GDP	3.05088	1.33308	0.1825
GDP does not homogeneously cause PSI	3.47946	2.37022	0.0178
TRADE does not homogeneously cause GDP	3.06046	1.35626	0.1750
GDP does not homogeneously cause TRADE	3.02690	1.27506	0.2023
CORRP does not homogeneously cause GDP	2.94450	1.07564	0.2821
GDP does not homogeneously cause CORRP	2.69674	0.47610	0.6340

formation promotes technical advancement in an economy, encouraging the advantages of large-scale industry while also increasing specializations inside the economy. Moreover, when capital formation proceeds to appropriate natural resource exploitation and the formation of various sorts of businesses, income levels rise, resulting in greater levels of economic growth.

Table 10 presents the findings of the Granger causality test outcomes. The outputs show W (W-bar) and Z (Z-bar) estimates. According to Dumitrescu and Hurlin (2012), the Z-bar stat estimate is more favorable when N is large, and T is small. According to findings, the null hypothesis that GDP does not Granger-cause ODA is accepted, while the null hypothesis that ODA does not Granger-cause GDP is rejected. These findings imply that GDP in developing economies does not cause the current level of ODA, while the current level of ODA does cause GDP. It is also imperative to note that the null hypotheses that GDP does not Granger-cause CORRP and CORRP does not Granger-cause GDP are rejected. These findings imply that GDP in developing economies causes the current level of CORRP and vice versa. Thus, to the author's best knowledge, causality involving the GDP and corruption (and vice versa) in developing economies exists with feedback effects.

3.1 Discussion

Results showed a positive but insignificant association between human capital and economic growth in sub-Saharan African countries. According to the theoretical literature, human capital is essential for economic growth (Lucas, 1988; Mankiw et al., 1992). According to the IMF's regional perspective, the SSA region seems to be the world's worst performer, with the economy's growth rate falling from 4.75% in 2010 to 2.4% in 2018 (IMF, 2019). Despite significant educational returns, the sub-Saharan African (SSA) region lacks a strong human capital base due to low school enrollment, significant pupil-teacher ratios, and large adolescent dropout rates in several of the region's economies. In addition, access to training and learning institutions is limited due to a lack of sufficient institutions and support systems for education and skill development.

In comparison to the rest of the world, SSA has the lowest school enrollment rates, indicating an inadequate human capital base. Numerous countries in sub-Saharan Africa are among the globe's least developed countries (LDCs) with minimal income levels. As a result, they cannot provide sufficient education and training institutions to accommodate the growing number of persons seeking training and education. Many African countries are underdeveloped due to a lack of cash and a lack of knowledge and skills necessary to increase productivity and real income.

Results show a negative link between human capital and economic growth in most corrupt economies when corruption is included in the model and when the model is estimated without corruption. Some studies show that human capital has a negative or minor effect on economic growth in growth regressions (Benhabib and Spiegel, 1994; Miller and Upadhyay, 2000; Islam, 2005). These studies have

recognized some particular causes, such as country heterogeneity, estimation errors, data management, alternative estimation techniques, and the existence of outliers, model specification, and endogeneity, for poor estimates of human capital. For the first time, Rogers (2008) presented the role of governance in corruption while estimating the relationship between human capital and growth. Rogers (2008) empirically demonstrated that corruption, the black market premium, and the extent of the brain drain are the potential sources of unproductive education and failure to generate the required beneficial impact of human capital on growth in developing nations. This study also found that human capital positively impacts countries with low corruption, while it has no impact on development in the most corrupt nations. Our results cohere with these findings.

The general form of corruption is bribery, in which the giving of money or a gift changes the recipient's behavior. Bribery in any form is considered a crime according to both law and religion. In the legal sense, offering, giving, receiving or soliciting something of value to influence a government official, or a public or legal affairs official, is called a bribe or act of corruption. The purpose of the bribe is to influence the recipient's actions. Bribes can be given in any form—as money, a thing, property, preference, privilege, compensation, an item of value, a benefit, or simply a promise or pledge to influence or persuade a government or public official to act or vote. According to the Islamic perspective on bribe-takers, it is written: "Indeed, they who conceal what God has sent down of the Book and exchange it for a small price—those consume not into their bellies except the Fire. And God will not speak to them on the Day of Resurrection, nor will He purify them. And they will have a painful punishment" (Quran.com, 2016). It is also said to bribe-takers: "And do not consume one another's wealth unjustly or send it [in bribery] to the rulers in order that [they might aid] you [to] consume a portion of the wealth of the people in sin, while you know [it is unlawful]"(Quran.com, 2016). In his commentary on the above verse, Mufti Muhammad Shafi' explains why such matters are considered illegal, unlawful, or erroneous and sinful in the Shari'ah. It is because they are disturbed for some reason. Sometimes there is deception, sometimes there is compensation for an unknown thing or unknown action, somewhere someone's right has been usurped. Sometimes profit is gained by harming someone, sometimes public rights are misappropriated. The main reason for declaring usury as ḥarām or unlawful is that it is harmful to public rights, and so too are its consequences. Some people grow up and the whole nation becomes poor. Such matters are not permissible even with the consent of the parties because it is a crime against the whole nation (Shafi', 2008). This verse, in terms of its translation, is very clear in forbidding bribery and corruption, because bribery is an act that has a direct effect on public rights, and because of this, the right of the rightful owner is destroyed.

It is found empirically that foreign aid has insignificant impact on economic growth in developing economies (Tang and Bundhoo, 2017; Sothan, 2018; Yiew and Lau, 2018). In this study, foreign aid is found to be insignificant for SSA. Walin

(2014) found an insignificant association between foreign assistance and economic growth for the SSA region and argued that there is no indication of the progressive impact of foreign aid even in a good policy environment. According to estimated coefficients of official development assistance for both specifications (WOC and WC), foreign aid is not beneficial for corrupt economies. Aid-growth literature provides many studies which show that foreign aid becomes wholly ineffective or even negatively affects the economy in the presence of corruption. Public officials, politicians, and bureaucrats all have strong incentives to exploit the resources for their own interests (Jiang, 2018). As a result, all resources (domestic and foreign) are usually misallocated and mismanaged in most corrupt economies. Commercial law is a broad term covering a variety of legal services aimed at assisting businesses in entering into contracts with one another, executing contracts, and resolving issues that emerge during the process (Monczka, 2010). One strategy to minimize corruption and use foreign help to boost business operations and economic growth would be for developing countries to enforce commercial law properly.

A positive association between trade openness and economic growth is consistent with theoretical findings. Many studies have confirmed this association (Edwards, 1992; Greenaway et al., 2002; Yanikkaya, 2003; Parikh and Stirbu, 2004). Using different estimation techniques, these studies reach the same conclusion—that with a high degree of trade openness, the economy can grow faster. Results show that trade openness has a progressive and substantial association with economic growth in SSA and most corrupt economies for both specifications.

The coefficient of the political stability index indicates that an economy grows in a situation of political stability. The political stability index has a positive and significant impact on economic growth in developing economies. The most evident link between economic growth and political stability is that economic growth thrives in a stable environment. Local and foreign investors are at ease with capital spending in any economy with a politically stable structure. Investments are deemed dangerous in an unpredictable political atmosphere since there is no guarantee they will be safe. Alesina and Perotti (1996) and Barro and Lee (1994) found that political instability slows economic development. Aisen and Veiga (2013) and Qureshi et al. (2010) found the same. The political stability index also shows a significant impact on economic growth. Gyimah-Brempong and Traynor (1996) found a damaging and significant association between political instability and economic growth in SSA. The political stability index shows insignificant effects in most corrupt economies. The coefficient of the corruption perception index shows harmful and weighty impact on economic growth in following the corruption theory of "sanding the wheel." Corruption within recipient nations can seriously undermine the achievement of anticipated outcomes. Corruption directly diverts a proportion of foreign aid from fundamental objectives. Indirectly, it encourages inappropriate use of assistance. Where corruption

is widespread and financial survival and possibilities depend on providing and taking bribes, the efficacy of assistance projects is hindered (Mouneer and Khan, 2019).

Results show that corruption reduces economic growth significantly, while the estimate for the aid coefficient illustrates that foreign assistance has an insignificant influence on economic growth. It has been empirically proven that higher levels of corruption lower growth rates, with political instability being the most powerful means through which corruption contributes negatively to economic growth (Mo, 2001). Estimated coefficients of trade (TRADE) and the political stability index (PSI) have positive and significant effects on economic growth in developing economies, even in the presence of corruption. The statistics for the first and second-order serial autocorrelation tests by Arellano and Bond (1991), AR (1) and AR (2), demonstrate no evidence of any autocorrelation for AR (2). The Sargan-statistic implies that a valid instrument set is used for GMM estimates to over-identify constraints. Corruption has negative impact on economic growth, while foreign aid is ineffective for SSA in the presence of corruption. Researchers can extend this study, which is restricted to corruption because of the limited scope, to explore other factors determining foreign aid effectiveness.

4 CONCLUSION AND SUGGESTIONS

This study explores the aid-growth relationship for overall developing economies by using the difference GMM panel data estimation technique. It was found empirically that foreign assistance impacts the GDP growth rate (economic growth) in developing economies. Corruption is incorporated into the model to observe its role in foreign aid effectiveness issues. Results showed that corruption significantly reduces economic growth, while the aid coefficient estimate showed that foreign assistance has an insignificant influence on economic growth. It is empirically concluded that the corruption level of a country reduces the growth rate, and political instability is the main channel through which corruption impacts economic growth and development. It is also observed from analysis that sub-Saharan African (SSA) economies receive a high level of foreign aid, but still cannot obtain maximum benefit due to various economic and social problems. One identified problem is again corruption. Foreign aid is observed to be almost insignificant in most corrupt economies from other regions. Due to the statistically insignificant effect of foreign assistance on economic growth, the study suggests that developing nations should pay special attention to directing incoming foreign aid into productive operations rather than mixing up resources for private interests.

The research indicates that foreign assistance needs to be utilized efficiently and effectively by donors and recipient nations. The recipient state's political ability to effectively

reform its institutional structures and strategies is a prerequisite for efficient assistance. While donors may impose specific measures on the recipient nations, there is still a need for the rulers of the recipient nations to have the political will to make the assistance efficient. Corruption poses a serious threat to civilization. It must be eradicated from the system. Strict commercial laws, as well as their implementation, should be practical and well-executed. Ending injustice, modernizing public administration and financial planning, encouraging transparency and dissemination of information, empowering communities, and eliminating internal vulnerabilities in the trading system are some initiatives that could help eliminate corruption through commercial law.

DATA AVAILABILITY STATEMENT

The original contributions presented in the study are included in the article/supplementary material. Further inquiries can be directed to the corresponding author.

AUTHOR CONTRIBUTIONS

YY: conceptualization; HL: methodology; SM: software and validation; HA: formal analysis; YY: investigation, resources, and data curation; HL and AM: writing—original draught; AM and SM: writing—review and editing; YY: visualization and supervision.

REFERENCES

Abd El Hamid, H. (2013). Foreign Aid and Economic Growth in Egypt: A Cointegration Analysis. *Int. J. Econ. Financ. Issues* 3, 743.

Aisen, A., and Veiga, F. J. (2013). How Does Political Instability Affect Economic Growth? *Eur. J. Political Econ.* 29, 151–167. doi:10.1016/j.ejpoleco.2012.11.001

Alesina, A., and Perotti, R. (1996). Income Distribution, Political Instability, and Investment. *Eur. Econ. Rev.* 40, 1203–1228. doi:10.1016/0014-2921(95)00030-5

Ali, G. (2015). Gross Fixed Capital Formation & Economic Growth of Pakistan. *J. Res. Humanit. Arts Lit. Appl.* 1, 21–30.

Arellano, M., and Bond, S. (1991). Some Tests of Specification for Panel Data: Monte Carlo Evidence and an Application to Employment Equations. *Rev. Econ. Stud.* 58, 277–297. doi:10.2307/2297968

Armah, S., and Nelson, C. (2008). "Is Foreign Aid Beneficial for Sub-Saharan Africa," in *A Panel Data Analysis* (Orlando, FL: Association Annual Meeting). *Paper (467246) prepared for presentation as a poster at the American Agricultural Economics.*

Barro, R. J. (1991). Economic Growth in a Cross Section of Countries. *Q. J. Econ.* 106, 407–443. doi:10.2307/2937943

Barro, R. J., and Lee, J.-W. (1994). Sources of Economic Growth. *Carnegie-Rochester Conf. Ser. Public Policy* 40, 1–46. doi:10.1016/0167-2231(94)90002-7

Benhabib, J., and Spiegel, M. M. (1994). The Role of Human Capital in Economic Development Evidence from Aggregate Cross-Country Data. *J. Monetary Econ.* 34, 143–173. doi:10.1016/0304-3932(94)90047-7

Blackburn, K., and Forgues-Puccio, G. F. (2011). Foreign Aid: A Fillip for Development or a Fuel for Corruption? Centre for Growth and Business Cycle Research, Discussion Paper Series 158, Economics. Manchester, United Kingdom: The University of Manchester.

Bobba, M., and Powell, A. (2007). *Aid Effectiveness: Politics Matters.*

Bonell, M. J., and Meyer, O. (2015). "The Impact of Corruption on International Commercial Contracts - General Report," in *The Impact of Corruption on International Commercial Contracts* (Springer), 1–36. doi:10.1007/978-3-319-19054-9_1

Bowen, J. (1995). Foreign Aid and Economic Growth: An Empirical Analysis. *Geogr. Anal.* 27, 249–261. doi:10.1111/j.1538-4632.1995.tb00908.x

Burnside, C., and Dollar, D. (1997). Aid Spurs Growth-In a Sound Policy Environment. *Financ. Dev.* 34, 4–7.

Burnside, C., and Dollar, D. (2000). Aid, Policies, and Growth. *Am. Econ. Rev.* 90, 847–868. doi:10.1257/aer.90.4.847

Chansomphou, V., and Ichihashi, M. (2011). *Foreign Aid, Foreign Direct Investment and Economic Growth of Lao PDR.* IDEC DP2 Series 1-2. Hiroshima, Japan: Hiroshima University, Graduate School for International Development and Cooperation (IDEC).

Chenery, H. B., and Strout, A. M. (1966). Foreign Assistance and Economic Development. *Am. Econ. Rev.* 56, 679–733.

Domar, E. D. (1946). Capital Expansion, Rate of Growth, and Employment. *Econometrica* 14, 137. doi:10.2307/1905364

Dumitrescu, E.-I., and Hurlin, C. (2012). Testing for Granger Non-causality in Heterogeneous Panels. *Econ. Model.* 29, 1450–1460. doi:10.1016/j.econmod.2012.02.014

Durbarry, R., Gemmell, N., and Greenaway, D. (1998). *New Evidence on the Impact of Foreign Aid on Economic Growth.*

Easterly, W., and Easterly, W. R. (2006). *The White Man's Burden: Why the West's Efforts to Aid the Rest Have Done So Much Ill and So Little Good.* Penguin.

Economides, G., Kalyvitis, S., and Philippopoulos, A. (2008). Does Foreign Aid Distort Incentives and Hurt Growth? Theory and Evidence from 75 Aid-Recipient Countries. *Public Choice* 134, 463–488. doi:10.1007/s11127-007-9239-9

Edwards, S. (1992). Trade Orientation, Distortions and Growth in Developing Countries. *J. Dev. Econ.* 39, 31–57. doi:10.1016/0304-3878(92)90056-f

Ekanayake, E. M., and Chatrna, D. (2010). The Effect of Foreign Aid on Economic Growth in Developing Countries. *J. Int. Bus. Cult. Stud.* 3, 1–13.

Granger, C. W. J. (1969). Investigating Causal Relations by Econometric Models and Cross-Spectral Methods. *Econometrica* 37, 424–438. doi:10.2307/1912791

Greenaway, D., Morgan, W., and Wright, P. (2002). Trade Liberalisation and Growth in Developing Countries. *J. Dev. Econ.* 67, 229–244. doi:10.1016/s0304-3878(01)00185-7

Greene, W. H. (2003). *Econometric Analysis.* Noida, India: Pearson Education India.

Gyimah-Brempong, K., and Traynor, T. L. (1996). Political Instability and Savings in Less Developed Countries: Evidence from Sub-Saharan Africa. *J. Dev. Stud.* 32, 695–714. doi:10.1080/00220389608422436

Hansen, L. P. (1982). Large Sample Properties of Generalized Method of Moments Estimators. *Econometrica* 50, 1029–1054. doi:10.2307/1912775

Harrod, R. F. (1939). An Essay in Dynamic Theory. *Econ. J.* 49, 14. doi:10.2307/2225181

Herzer, D., and Morrissey, O. (2011). "Long-Run Aid Effectiveness," in CSAE Conference 2011, Economic Development in Africa, Oxford, March 2011.

Hodler, R., and Knight, D. S. (2011). Ethnic Fractionalisation and Aid Effectiveness. *J. Afr. Econ.* 21, 65–93. doi:10.1093/jae/ejr036

Hodler, R. (2007). Rent Seeking and Aid Effectiveness. *Int. Tax. Public Finance* 14, 525–541. doi:10.1007/s10797-006-9006-8

Holtz-Eakin, D., Newey, W., and Rosen, H. S. (1988). Estimating Vector Autoregressions with Panel Data. *Econometrica* 56, 1371–1395. doi:10.2307/1913103

IMF (2019). *Republic of Uzbekistan: Fiscal Transparency Evaluation.* Washington, DC: IMF Staff Ctry. Reports. doi:10.5089/9781498312745.002

Islam, M. N. (2005). Regime Changes, Economic Policies and the Effect of Aid on Growth. *J. Dev. Stud.* 41, 1467–1492. doi:10.1080/00220380500187828

Jiang, J. (2018). Making Bureaucracy Work: Patronage Networks, Performance Incentives, and Economic Development in China. *Am. J. Political Sci.* 62, 982–999. doi:10.1111/ajps.12394

Karras, G. (2006). Foreign Aid and Long-Run Economic Growth: Empirical Evidence for a Panel of Developing Countries. *J. Int. Dev.* 18, 15–28. doi:10.1002/jid.1187

Kosack, S. (2003). Effective Aid: How Democracy Allows Development Aid to Improve the Quality of Life. *World Dev.* 31, 1–22. doi:10.1016/s0305-750x(02)00177-8

Levin, A., Lin, C.-F., and James Chu, C.-S. (2002). Unit Root Tests in Panel Data: Asymptotic and Finite-Sample Properties. *J. Econ.* 108, 1–24. doi:10.1016/s0304-4076(01)00098-7

Lucas, R. E., Jr (1988). On the Mechanics of Economic Development. *J. Monetary Econ.* 22, 3–42. doi:10.1016/0304-3932(88)90168-7

Mankiw, N. G., Romer, D., and Weil, D. N. (1992). A Contribution to the Empirics of Economic Growth. *Q. J. Econ.* 107, 407–437. doi:10.2307/2118477

Meyer, D. F., and Sanusi, K. A. (2019). A Causality Analysis of the Relationships between Gross Fixed Capital Formation, Economic Growth and Employment in South Africa. *Stud. Univ. Babes-Bolyai Oeconomica* 64, 33–44. doi:10.2478/subboec-2019-0003

Mileva, E. (2007). Using Arellano-Bond Dynamic Panel GMM Estimators in Stata. *Econ. Dep. Fordham Univ.* 64, 1–10.

Miller, S. M., and Upadhyay, M. P. (2000). The Effects of Openness, Trade Orientation, and Human Capital on Total Factor Productivity. *J. Dev. Econ.* 63, 399–423. doi:10.1016/s0304-3878(00)00112-7

Mo, P. H. (2001). Corruption and Economic Growth. *J. Comp. Econ.* 29, 66–79. doi:10.1006/jcec.2000.1703

Monczka, R. M. (2010). *Purchasing and Supply Chain Management: European Version*. Mason, OH: Cengage Learn.

Moreira, S. B. (2005). Evaluating the Impact of Foreign Aid on Economic Growth: A Cross-Country Study. *J. Econ. Dev.* 30, 25–48.

Mouneer, S., and Khan, R. E. A. (2019). How Does Corruption Disturb the Foreign Aid Effectiveness to Reduce Child Mortality Rate in Developing Economies? *Pak. J. Soc. Sci.* 39, 1559–1569.

Muhammad, J., and Qayyum, A. (2011). Foreign Aid-Growth Nexus in pakistan: Role of Macroeconomic Policies. *Econ. Bull. AccessEcon* 30, 1–31.

Ouattara, B. (2006). Foreign Aid and Government Fiscal Behaviour in Developing Countries: Panel Data Evidence. *Econ. Model.* 23, 506–514. doi:10.1016/j.econmod.2006.02.001

Parikh, A., and Stirbu, C. (2004). *Relationship between Trade Liberalisation, Economic Growth and Trade Balance: An Econometric Investigation*.

Pesaran, M. H. (2004). *General Diagnostic Tests for Cross Section Dependence in Panels*. IZA Discussion Paper No. 1240. Study Labor: Inst.

Pesmazoglu, J. (1972). Growth, Investment and Saving Ratios: Some Long and Medium Term Associations by Groups of Countries. *Bull. Oxf. Univ. Inst. Econ. Stat.* 34, 309–328. doi:10.1111/j.1468-0084.1972.mp34004001.x

Quran.com (2016). *The Noble Quran*.

Qureshi, M. N., Ali, K., and Khan, I. R. (2010). Political Instability and Economic Development: Pakistan Time-Series Analysis. *Int. Res. J. Financ. Econ.* 56, 179–192.

Rajan, R. G., and Subramanian, A. (2008). Aid and Growth: What Does the Cross-Country Evidence Really Show? *Rev. Econ. Statistics* 90, 643–665. doi:10.1162/rest.90.4.643

Rogers, M. L. (2008). Directly Unproductive Schooling: How Country Characteristics Affect the Impact of Schooling on Growth. *Eur. Econ. Rev.* 52, 356–385. doi:10.1016/j.euroecorev.2007.03.001

Rostow, W. W. (1960). *The Stages of Growth: A Non-communist Manifesto*. Cambridge University Press.

Sargan, J. D. (1958). The Estimation of Economic Relationships Using Instrumental Variables. *Econometrica* 26, 393. doi:10.2307/1907619

Shafi', M. M. (2008). *Maarif Al-Quran*. 1st ed. Karachi: Maarif al-Quran.

Sothan, S. (2018). Foreign Aid and Economic Growth: Evidence from Cambodia. *J. Int. Trade & Econ. Dev.* 27, 168–183. doi:10.1080/09638199.2017.1349167

Svensson, J. (2000). Foreign Aid and Rent-Seeking. *J. Int. Econ.* 51, 437–461. doi:10.1016/s0022-1996(99)00014-8

Tang, K.-B., and Bundhoo, D. (2017). Foreign Aid and Economic Growth in Developing Countries: Evidence from Sub-Saharan Africa. *Theor. Econ. Lett.* 07, 1473–1491. doi:10.4236/tel.2017.75099

Tiwari, A. K., and Kalita, M. (2011). Governance and Foreign Aid in ASIAN Countries. *Econ. Bull.* 31, 453–465.

Walin, A. (2014). *Aid, Policies and Growth in Sub-Saharan Africa*.

Yanikkaya, H. (2003). Trade Openness and Economic Growth: a Cross-Country Empirical Investigation. *J. Dev. Econ.* 72, 57–89. doi:10.1016/s0304-3878(03)00068-3

Yiew, T.-H., and Lau, E. (2018). Does Foreign Aid Contribute to or Impeded Economic Growth? *J. Int. Stud.* 11, 21–30. doi:10.14254/2071-8330.2018/11-3/2

Conflict of Interest: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Publisher's Note: All claims expressed in this article are solely those of the authors and do not necessarily represent those of their affiliated organizations, or those of the publisher, the editors and the reviewers. Any product that may be evaluated in this article, or claim that may be made by its manufacturer, is not guaranteed or endorsed by the publisher.