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IMPACT OF FOREIGN AID ON CORRUPTION: AN ECONOMETRIC CASE STUDY OF SOUTH ASIA AND EAST ASIA

Rahim Quazi, Prairie View A&M University
Arshad Alam, Prairie View A&M University
Sudhir Tandon, Prairie View A&M University

ABSTRACT

An interesting area of research has emerged that explores the relationship between foreign aid and corruption in developing countries. Several studies have found that corruption is festered by rent seeking activities in the recipient countries when aid-funded resources are transferred without accountability at the decision makers' discretion. On the other hand, several studies have concluded that foreign aid helps curb corruption by improving the quality of governance. This study uses 1996-2013 annual data from 14 developing countries in South Asia and East Asia to analyze the impact of aid on corruption. Results estimated in this study suggest that foreign aid has helped lower corruption in the sample countries and the impact of multilateral aid on curbing corruption is stronger than that of bilateral aid. In addition, rule of law, political stability and accountability are found to be strong deterrents of corruption. These results improve our understanding of the aid-corruption dynamics, which is critical for designing strategies to promote long-term economic efficiency in developing countries.

JEL: F35, D73

KEYWORDS: Foreign Aid, Corruption, South Asia, East Asia

INTRODUCTION

At the turn of the 20th century, international transfer of capital was mostly confined to the transfer of private capital among the wealthy western nations. International transfer of public capital gained prominence after the WWI, and it was not until after the WWII that public lending from developed nations to developing nations started to assume a more significant role in the growth dynamics of the recipient economies. At the conclusion of the WWII, the US launched the Marshal Plan (also known as the European Recovery Program) to help restore economic stability in war-ravaged Europe and also to defend against Soviet expansion in the continent. Inspired by the success of the Marshal Plan, many foreign assistance programs were subsequently conceived to assist the developing countries. At the same time, many developing countries also embarked on their campaign of achieving rapid economic growth and utilized this opportunity of availing easy foreign capital as the primary means of achieving that target. However, the subsequent growth experience of many of these aid-recipient countries turned out less than satisfactory, which generated intense debate among economists about the efficacies of foreign aid programs (Quazi 2010).

Based on the early theoretical development of the 1950's and 1960's, the traditional pro-aid view holds that aid contributes to economic growth in recipient countries by complementing domestic resources, helping transfer modern technology, easing foreign exchange constraints, and facilitating easy access to foreign markets (Chenery 1965 and Papanek 1972). In the backdrop of empirical revelation that growth of some of

the aid-recipient countries had actually been negative, the anti-aid view holds that aid actually harms the recipient countries by supplanting domestic resources, funding the transfer of inappropriate technology, worsening income inequality and trade balance, and in general helping sustain corrupt governments (Griffin and Enos 1970 and Weisskopf 1972).

Following the anti-aid view, an interesting area of research has emerged that explores the relationship between foreign aid and corruption. Several prominent studies, such as Rose-Ackerman (1975), Klitgaard (1988), and Bliss and Di Tella (1997), have contended that rent seeking activities contribute to corruption when decision makers are able to transfer resources at their discretion without accountability. Tavares (2003) asserted that foreign aid arguably engenders these rent seeking activities, as "Aid disbursements are typically handed free to local authorities that then distribute them, with considerable discretion, among their fellow citizens. Aid is thus ripe territory for corruption." Knack (2001) contended that increased aid-dependence compensates for poor economic policies and weak governance in recipient countries by offering them a “crutch”. Increased conflict over aid funds can also create incentives for corruption. The World Bank admitted that huge increase in foreign aid packages to developing countries has inadvertently contributed to the "opportunities of malfeasance" (World Bank 1989). If foreign aid is indeed a contributing factor for increased corruption, that may explain the negative impact of aid on the recipient economy. Many studies have analyzed the economic consequences of corruption using alternative economic theories, such as rent-seeking, transaction cost, etc. and generally found that corruption breeds inefficiencies and distortions, which harm the economy. For example, Mauro (1995) found that corruption entrenches inefficiencies; Gupta et al. (1998) found that corruption worsens poverty and income distribution, and adversely affects education and healthcare services, and Tanzi and Davoodi (1997) found that corruption reduces productivity of public investment. It should be noted that several studies have offered the alternative view that corruption can facilitate decision-making and enhance efficiency. For example, Bardhan (1997) suggested that corruption can “grease the wheels of commerce” in the presence of weak legal and regulatory frameworks, and Houston (2007) found that corruption raises economic growth in countries that have weak legal frameworks.

On the opposite camp of this debate, several studies (e.g. Goldsmith 2001, Dunning 2004, Ear 2007, Charron 2011, and Okada and Samreth 2012) have argued that foreign aid affects the quality of governance positively, which helps curb corruption. These studies contend that aid donors can impose pre-conditions on the recipient countries that they must initiate specific reforms prior to receiving aid packages to improve the quality of governance and reduce corruption. International oversight by aid donors may also enhance accountability of recipient governments. In a related study, Alesina and Weder (2002) found that more aid is given to more corrupt countries; however, the econometric evidence that foreign aid breeds corruption is statistically weak. Knack (2001) also found that bureaucratic quality and rule of law is weakened by foreign technical assistance, but the relationship between aid and corruption is not significant.

An important catalyst in affecting the impact of aid on corruption is the “Anti-Corruption Movement” (ACM) that major international organizations launched in developing countries in the late 1990s (Charron 2011). The ACM was launched following the consensus of major international organizations in the mid-1990s to give high priorities to good governance in developing countries. In 1995, the United Nations established a new division (Management Development and Governance Division) to promote government accountability and transparency in member states. In 1996, the OECD members signed the convention on “Combating Bribery of Foreign Public Officials in International Business Transactions”. The IMF also launched its anti-corruption campaign in 1996. In the same year, all members of the World Trade Organization (WTO) joined the Working Group on Transparency in Government Procurement, which was created to address accountability and corruption. The following year, the World Bank (WB) created a new anti-corruption institution (World Bank Institute) and started focusing on anti-corruption measures in recipient countries. Following into the footsteps of the global international organizations, a number of regional organizations, such as the European Union and the Organization of American States, also initiated

anti-corruption campaigns by the late 1990s. Since the launch of the ACM, foreign aid from multilateral organizations has been reportedly tied to the recipient governments' commitment to fighting corruption (ibid).

This study uses 1996-2013 panel data from 14 developing countries in South Asia and East Asia to analyze the impact of foreign aid on corruption. The sample includes 7 countries from South Asia (Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka) and 7 countries from East Asia (Cambodia, China, Indonesia, Lao, Malaysia, Philippines and Vietnam). These countries were selected for this study as they have generally witnessed high incidence of corruption and also received huge foreign aid (see Table 1). Using the GLS-Random Effects estimation methodology, this study finds that foreign aid actually has helped curb corruption in the sample countries and that multilateral aid is more effective than bilateral aid in reducing corruption. In addition, rule of law, political stability and accountability are found to be very strong deterrents of corruption, but educational attainment, economic development and regional differences do not appear to have significant effects on corruption.

The rest of the paper is organized as follows: the second section presents literature review, the third section describes the model, methodology, and data, the fourth section discusses the estimated results, and the final section concludes the paper.

LITERATURE REVIEW

A robust empirical literature on the relationship between corruption and foreign aid has grown in the last two decades; however, there appears to be little consensus in the literature about the nature of this relationship. Among the early aid-corruption studies, Svensson (2000) used a game-theoretic rent seeking model on panel data from 66 aid recipient countries covering the period 1980-1999. The exogenous variables included: terms of trade, primary product exports/GDP, initial per capita income, population, national income, and region specific dummy variables for Sub-Saharan Africa and Central America. Using a 2SLS simultaneous model, this study found three key results: first, foreign aid influx and large windfall gains raise government revenues, which under certain circumstances may lead to reduced provision of public goods; second, the prospect of aid influx may create "rent dissipation" leading to wasteful public spending; and third, the presence (or absence) of competing social groups is a critical catalyst of the aid-corruption relationship, which is found to be positive in countries populated with competing social groups, and negative in countries that have few competing social groups. The study concluded that the aid donors can restrain rent seeking activities in recipient countries if they are able to formulate binding policy agreements with competing social groups.

Svensson (2000) found no statistical evidence that the less corrupt countries systematically receive more foreign aid. A later study found that the more corrupt countries in fact receive more foreign aid, which is perhaps due to the fact that the more corrupt countries are also generally the more impoverished countries, which should receive huge aid packages (Alesina and Weder 2002). This study also found weak statistical evidence that aid leads to more corruption. In a recent study, Acht et al. (2014) also found that the more corrupt countries receive more aid. However, when bilateral donors become concerned about the developmental issues in poorly-governed countries (which typically take a back seat to the donor countries' geo-political self-interests), these countries are allocated smaller amounts of direct government-to-government bilateral aid (both in absolute amounts and as a share of total aid), and instead more aid is channeled through NGOs and multilateral organizations bypassing the recipient governments.

Tavares (2003) analyzed the impact of aid from the 11 largest OECD countries on corruption in non-OECD recipient countries. This study used political rights, ethno-linguistic fractionalization, oil exports, total population, government expenditures, colonial history, legal system, and religion as exogenous variables, and also accounted for the interaction between foreign aid and the recipient country's cultural and

geographical proximity to donor countries. The estimated results suggest that aid reduces corruption, which the author attributed to two effects - conditionality effect and liquidity effect. The conditionality effect is that aid donors may enforce strict rules and conditions on the recipient countries, thus limiting the discretion of their officials, which may in turn diminish corruption. The liquidity effect is that by providing additional resources to the cash-strapped poor governments, foreign aid may reduce public revenue shortages and contribute to higher salaries for public officials, which reduces the incidence of "petty corruption" by them.

Ali and Isse (2003) studied the determinants of corruption with data from the 1980s-1990s. The estimated results suggest that corruption is reduced by more efficient judiciary, improved schooling, smaller government, greater economic freedom, decentralized government and less foreign aid. Among other variables, political freedom, per capita GDP growth rate and ethnicity were found to have insignificant impact on corruption. The results also showed that as the level of aid increases, the marginal impact of government expenditure on corruption also increases. The study concluded that foreign aid "strengthens the predatory power of the government ... and creates opportunities for the government to proliferate, which in turn increases the level of corruption" (p. 460).

Charron (2011) estimated a 2SLS and a generalized method of moments (GMM) model with panel data from 82 countries from 1986-2006. The models included different types of aid, level of institutionalized democracy, economic development, ethno-linguistic fractionalization, and legal system as determinants of corruption. This study analyzed the effects of foreign aid on corruption by disaggregating aid into different types (multilateral aid vs. bilateral aid) and in different timeframes (pre- vs. post-1997). The underlying premise of analyzing different timeframes is that since the mid-1990s (when the ACM was launched) good governance and corruption reforms have been at the core of many multilateral aid projects and 1997 is the watershed year for the international organizations' fight against corruption, as major anti-corruption agreements were signed by that year. This study found that the ACM adopted by the major multilateral organizations helped curb corruption in developing countries, but bilateral aid had either positive or insignificant effects on corruption.

Okada and Samreth (2012) used data from 120 developing countries from 1995-2009 to analyze the effects of aid on corruption. They used different types of aid (i.e. total aid, multilateral aid and bilateral aid from four major donors - France, Japan, UK and US), per capita income, democracy and legal origin as exogenous variables. Using the *quantile* regression approach, which helps analyze the effects of aid on corruption at different intervals on the corruption distribution, this study found that foreign aid generally reduces corruption, and the reduction impact is greater in low-corruption countries. These results are explained with the reasoning that foreign aid is likely to be utilized more efficiently in low-corruption countries, which, *inter alia,* may improve the quality of institutions and governance, which in turn reduces corruption. They also found that multilateral aid is more effective in reducing corruption than bilateral aid (except for aid from Japan), which is due to the fact that multilateral aid is often tied to the recipient countries' commitment to promotion of institutional quality and reduction of corruption. Bilateral aid on the other hand is often dictated by geo-political strategic self-interests of the donor countries and colonial relationships with their former colonies. However, it was found that bilateral aid from Japan negatively affects corruption in recipient countries, which is partly due to the fact that, unlike the other three donors, Japan does not have strong historical relationships with the recipient countries.

Asongu (2012) estimated a 2SLS-IV and a Dynamic System GMM regression model with 1996-2010 panel data from 52 African countries. The models used three different types of aid (official development assistance, aid from the DAC (Development Assistance Committee) countries and aid from multilateral donors), trade openness, democracy, legal origins, income levels, and religion as exogenous variables. The results suggest a robust and positive relationship between foreign aid and corruption in Africa. In a related study, Asongu (2013) analyzed the impact of foreign aid on a broad set of institutional quality indicators (i.e. political stability, government effectiveness, voice & accountability, rule of law, regulation quality,

democracy, and corruption) in Africa. This study also analyzed whether the existing institutional thresholds play a significant role in influencing the impact of aid on institutions, which may differ across recipient countries with strong and weak institutions. Panel data from 53 African countries covering the period 1996-2010 were used to estimate OLS and *quantile* regressions. The OLS parameters provided a baseline of mean effects, which were compared to separate *quantile* estimates in the distributions of the dependent variables (institutional quality indicators). Foreign trade, foreign investment, public investment, legal system, per capita income, and dummy variables for low-income, English common-law and landlocked countries were used as exogenous variables. The estimated results suggest that foreign aid has generally weakened institutional quality in Africa, but there is no evidence that the existing institutional level has any bearing on the impact of aid on institutions.

No study has been conducted to analyze the impact of foreign aid on corruption in the sample regions selected in this study - East Asia and South Asia. Although some countries from this sample have been included in other studies as developing/emerging countries, no study has focused exclusively on the aid-corruption relationship in East Asia and South Asia. This study will make a unique contribution to the aid-corruption literature by improving our knowledge of the aid-corruption dynamics in these emerging economies.

MODEL, METHODOLOGY AND DATA

The following general-to-specific regression equation is used to estimate the models:

$$\text{Corruption}_{i,t} = \alpha + \beta_1 \text{Foreign Aid}_{i,t} + \beta_2 \text{Educational Attainment}_{i,t} + \beta_3 \text{ Economic Develeopment}_{i,t} + \beta_4 \text{ Rule of Law}_{i,t} + \beta_5 \text{ Political Stability}_{i,t} + \beta_6 \text{ Economic Freedom}_{i,t} + \beta_7 \text{ Region}_{i,t} + \varepsilon_{i,t}$$

The dependent variable (corruption) is measured by a proxy variable - the *Control of Corruption* indicator published by the *Worldwide Governance Indicators (WGI).* This index captures "perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as *capture* of the state by elites and private interests" (WGI 2013). The index is constructed with many variables, such as corruption and accountability in public sector, anti-corruption and transparency, prosecution of office abuse, irregular payments in judicial decisions, etc. Several recent studies, e.g. Okada and Samreth (2012) and Asongu (2012), have also used the CCI index as a proxy variable for corruption. On this index, countries are scored from -2.5 (weak control of corruption) to + 2.5 (strong control of corruption); therefore, a higher score on this index reflects less corruption. To ensure robustness of the estimated results, the regression equations are also estimated with the *Corruption Perceptions Index* (CPI) developed by the Transparency International (2013). The main results estimated with the CPI indicator are essentially similar to the results obtained with the CCI indicator. Since these two indices measure the same variable - corruption, they should be highly correlated. The correlation coefficient between these indices is indeed very high (0.90). Details are available from the author. Selection of the exogenous variables besides foreign aid has been guided by the extant empirical literature.

The literature holds that higher levels of educational attainment generally create an environment that contributes to less corruption (Ali and Isse 2003). As data on educational attainment (e.g. percent of population with primary/secondary school enrolment) for the sample countries during the sample period is not readily available, this study uses the percent of GDP spent on public education as a proxy variable for educational attainment. The *a priori* expected sign of the coefficient of educational attainment (β_2) is positive (note: a higher value of the dependent variable signifies less corruption).

If the basic need for survival is a driving force for corruption, then there should be a higher incidence of corruption in low income countries. Many studies have found that countries with higher economic

development generally suffer from less corruption (La Porta et al. 1999, Treisman 2000, Charron 2011, Okada and Samreth 2012, and Asongu 2012). This study uses the natural log of per capita GDP (adjusted for purchasing power parity) as a proxy variable for economic development. The *a priori* expected sign of the coefficient of economic development (β_3) is positive.

Countries with strong rule of law and efficient judiciary should be able to prosecute the rich and powerful and the common people alike who are found guilty of corruption, which should diminish the incidence of corruption. Many studies have found that the quality of judicial/legal system is an important determinant of corruption (Ali and Isse 2003, Tavares 2003, Charron 2011, Okada and Samreth 2012, Asongu 2012, and Asongu 2013). This study uses the Rule of Law indicator published by the WGI (2013) as a proxy variable for the quality of the judiciary/legal system. This indicator "captures perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence" (WGI 2013). The indicator is constructed with several variables, including protection of private property, reliability of police services, contract enforceability, fairness of judicial process, judicial independence, judicial accountability, law and order, etc. The a priori expected sign of the coefficient of rule of law (β4) is positive.

Democratic rights/freedom and political stability should contribute to an overall environment that diminishes rent seeking opportunities for corruption. Using several different proxy variables, many studies (e.g. Treisman 2000, Sandholtz and Gray 2003, Ali and Isse 2003, Tavares 2003, Charron 2011, Okada and Samreth 2012, and Asongu 2012) have found that the lack of political freedom and stability is an important driver of corruption in developing countries. This study uses the Political Stability and Absence of Violence indicator published by the WGI (2013) as a proxy variable for political stability. This indicator "measures perceptions of the likelihood that the government will be destabilized or overthrown by unconstitutional or violent means, including politically-motivated violence and terrorism" (WGI 2013). The indicator is constructed with several variables, including armed conflict, violent demonstrations, social unrest, government stability, ethnic tensions, civil unrest, etc. The *a priori* expected sign of the coefficient of political stability (β_5) is positive.

The domestic economic environment should also play an important role in shaping the overall environment where corruption can either thrive or diminish. Ali and Isse (2003) found that lack of economic freedom is a significant driver of corruption. The domestic economic environment is determined by a host of qualitative factors, therefore it is difficult to quantify. This study uses the *Index of Economic Freedom* published by the *Heritage Foundation* and *The Wall Street Journal* (2013) as a proxy for domestic economic environment. This index incorporates 50 independent variables in 10 broad categories -- government intervention in the economy, fiscal burden of government, trade policy, banking and finance, monetary policy, capital flows and foreign investment, regulation, property rights, black market activity, and wages and prices. The *a priori* expected sign of the coefficient of economic freedom (β_6) is positive.

A dummy variable (Region) has been added to check if there exists any regional difference between the effects of aid on corruption in South Asia vis-à-vis East Asia, which may arise due to economic and/or cultural differences across the two regions. However, it should be noted that these countries are not very far apart either geographically/culturally or in terms of economic performance (except for China), which may negate any such regional differences.

Following Charron (2011), Okada and Samreth (2012), and Asongu (2012), it can be reasonably assumed that multilateral aid is more effective in curbing corruption than bilateral aid. Multilateral aid is often tied to the recipient countries' commitment to and performance in fighting corruption, but bilateral aid is generally dictated by the geo-political strategic self-interests of the donor countries, who may not be

concerned as much about the success of the anti-corruption measures in the recipient countries. To test this hypothesis, a second set of models is estimated where foreign aid is disaggregated into multilateral aid and bilateral aid.

The regression models are estimated with 18 years of annual data (1996-2013) from 14 countries (7 South Asian and 7 East Asian countries). Selection of the sample period (1996-2013) is dictated by the availability of data – the *WGI* dataset is not available for years prior to 1996. Since the dataset comprises panel data, the regression models are estimated with the Generalized Least Squares (GLS) - Random Effects methodology. To ensure methodological robustness, the regression models have been also estimated with the Feasible Generalized Least Squares (FGLS) methodology. The estimated results are generally consistent with the GLS-Random Effects results. Details are available from the author.

Data on all types of foreign aid (total aid, multilateral aid, and bilateral aid - all as % of GNI), educational attainment (% of GDP spent on public education) and per capita GDP (PPP adjusted) have been collected from the World Development Indicators (World Bank 2014). Data for the WGI indicators (corruption, rule of law, and political stability) have been collected from the Worldwide Governance Indicators (WGI 2013), and data for economic freedom have been collected from the Index of Economic Freedom (Heritage Foundation/Wall Street Journal 2013). The dummy variable for regional differences takes the value of "1" for countries in South Asia and "0" for countries in East Asia.

Table 1 below presents the regional differences between South Asia and East Asia on two key variables – Control of Corruption Indicator (CCI) and Official Development Assistance/Gross National Income (ODA/GNI).

Table 1: Corruption and Foreign Aid Inflows in South Asia and East Asia

Country	Control of Corruption Index	ODA/GNI
South Asia		
Bangladesh	-1.07	2.16
Bhutan	0.69	13.35
India	-0.43	0.25
Maldives	-0.35	4.70
Nepal	-0.58	6.47
Pakistan	-0.94	1.54
Sri Lanka	-0.24	2.37
Regional Average	-0.42	4.41
East Asia		
Cambodia	-1.09	9.52
China	-0.49	0.12
Indonesia	-0.80	0.58
Laos	-1.07	13.20
Malaysia	0.27	0.05
Philippines	-0.58	0.55
Vietnam	-0.61	3.66
Regional Average	-0.62	3.96
Global Average	0.004	

Notes: Table 1 presents data on corruption and foreign aid inflows in South Asia and East Asia. It appears that the South Asian countries have received more foreign aid and are also marginally less corrupt than the East Asian countries, which accords with the hypothesis that foreign aid can help curb corruption in recipient countries.

The global average score for the corruption index (0.004) exceeds the average index score of each region (S. Asia: -0.42, E. Asia: -0.62), which suggests that each region suffers from a high incidence of corruption. The average score of South Asia is slightly higher than that of East Asia, which indicates that the South Asian sample countries are marginally less corrupt than their East Asian counterparts. The

ODA/GNI figures suggest that the South Asian countries (average 4.41%) have received more aid (as a share of national income) than the East Asian countries (average 3.96%). It appears from the data presented in Table 1 that the more aid-recipient South Asian countries are marginally less corrupt than the East Asian countries, which is in line with the hypothesis that foreign aid can help curb corruption in developing countries. It will be interesting to see if this negative relationship between aid and corruption still holds out in the multiple-variable panel regression framework used in this study that controls for the role of other important determinants of corruption (e.g. rule of law, education, economic freedom, political stability, etc.). The next section presents these regression results.

RESULTS

Tables 2-5 present the GLS-Random Effects regression results. Table 2 lists estimated results from the first three models which yield very similar results. These models include the same set of explanatory variables – foreign aid, educational attainment, economic development and regional differences. In addition, Model 1 includes one more explanatory variable (rule of law), which is replaced by "political stability" in Model 2 and by "economic freedom" in Model 3.

Table 2: GLS-Random Effects Regressions (Impact of Foreign Aid on Corruption)

Explanatory Variables	Model 1		Model 2		Model 3	
	Coeff.	z stat	Coeff.	z stat	Coeff.	z stat
Intercept	-0.57	-1.44	-0.34	-0.72	-1.05	-1.59
Foreign Aid	0.03	2.51**	0.03	1.94*	0.05	3.15**
Educational Attainment	0.02	0.95	0.01	0.55	0.05	1.77*
Economic Development	0.02	0.36	-0.04	-0.80	-0.02	-0.27
Regional Differences	0.01	0.03	0.21	0.86	0.14	0.54
Rule of Law	0.68	7.25**				
Political Stability			0.20	4.66**		
Economic Freedom					0.01	0.53
Diagnostic Statistics	n = 110		n = 110		n = 99	
	Wald $\chi^2_5 = 66.6$ (P value = 0.00)		Wald $\chi^2_5 = 34.5$ (P value = 0.00)		Wald $\chi^2_5 = 19.2$ (P value = 0.00)	

*Notes: Table 2 presents results from three models, which include slightly different sets of explanatory variables. The coefficient of foreign aid turns out positive and statistically significant in all models, which suggests that foreign aid has reduced corruption in the sample countries. **Coefficient statistically significant at 5%; *Coefficient statistically significant at 10%*

The coefficient of foreign aid turns out positive and statistically highly significant in all models, which suggests that foreign aid has helped curb corruption in the sample countries. The coefficient of educational attainment appears with the correct *a priori* positive sign, but is not statistically highly significant (except in Model 3). The coefficients of economic development and regional differences came out statistically highly insignificant in all models. When estimated separately, rule of law (in Model 1), political stability (in Model 2) and economic freedom (in Model 3) appear statistically highly significant with the correct *a priori* signs (except in Model 3); however, when estimated jointly they appear statistically insignificant, which could be due to the possible presence of multi-collinearity among these variables. Table 3 below presents the estimated results from three additional models, which are variations of the first three models listed in Table 2.

Again, the coefficient of foreign aid turns out positive and statistically highly significant in all models, and rule of law also appears to be a very significant deterrent of corruption in all models. In addition, accountability (a proxy variable for civil liberties collected from the WGI) and political stability also turn out statistically significant separately, but not jointly. The index measures "perceptions of the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media" (WGI 2013). Given that civil liberties and political

freedom/stability generally go hand in hand, it is likely that multi-collinearity exists between these two variables.

Table 3: GLS-Random Effects Regressions (Impact of Foreign Aid on Corruption)

Explanatory Variables	**Model 4**		**Model 5**		**Model 6**	
	Coeff.	z stat	Coeff.	z stat	Coeff.	z stat
Intercept	-0.33	-0.80	-0.46	-1.16	-0.84	-1.53
Foreign Aid	0.03	2.45**	0.03	2.15**	0.05	3.65**
Educational Attainment	0.02	0.84	0.02	0.66	0.04	1.40
Economic Development	0.01	0.01	0.01	0.12	0.03	0.72
Regional Differences	-0.03	-0.23	0.07	0.42	0.05	0.32
Rule of Law	0.64	6.78**	0.55	5.04**	0.64	6.41**
Accountability	0.16	2.22**				
Political Stability			0.10	2.11**		
Economic Freedom					0.01	0.06
Diagnostic Statistics	n = 110		n = 110		n = 99	
	Wald χ^2_6 = 69.6 (P value = 0.00)		Wald χ^2_6 = 67.3 (P value = 0.00)		Wald χ^2_6 = 63.5 (P value = 0.00)	

*Notes: Table 3 presents results from three additional models, which are variations of the models listed in Table 2. The coefficient of foreign aid again turns out positive and statistically highly significant in all models. **Coefficient statistically significant at 5%; *Coefficient statistically significant at 10%*

Tables 4-5 below re-estimate all models presented in Tables 2-3 by disaggregating total foreign aid into multilateral aid and bilateral aid.

Table 4: Impact of Multilateral Aid and Bilateral Aid on Corruption

Explanatory Variables	**Model 1**		**Model 2**		**Model 3**	
	Coeff.	**z stat**	**Coeff.**	**z stat**	**Coeff.**	**z stat**
Intercept	-0.22	-0.36	0.24	0.34	-0.68	-0.74
Multilateral Aid	0.06	2.53**	0.04	1.52	0.06	2.16**
Bilateral Aid	0.01	0.19	0.01	0.50	0.03	1.22
Educational Attainment	0.03	1.04	0.02	0.61	0.06	1.83*
Economic Development	-0.03	-0.39	-0.11	-1.36	-0.05	-0.66
Regional Differences	-0.01	-0.06	0.20	0.82	0.13	0.58
Rule of Law	0.65	6.79**				
Political Stability			0.18	4.11**		
Economic Freedom					0.01	0.49
Diagnostic Statistics	n = 110		n = 110		n = 99	
	Wald χ^2_6 = 64.9 (P value = 0.00)		Wald χ^2_6 = 36.2 (P value = 0.00)		Wald χ^2_6 = 17.6 (P value = 0.01)	

*Notes: Table 4 re-estimates all models presented in Table 2 by disaggregating total foreign aid into multilateral aid and bilateral aid. The coefficient of multilateral aid turns out positive and generally statistically significant, but the coefficient of bilateral aid came out statistically insignificant. These results suggest that multilateral aid has helped lower corruption in the sample countries, but bilateral aid has not. **Coefficient statistically significant at 5%; *Coefficient statistically significant at 10%*

The coefficient of multilateral aid turns out positive and statistically highly significant in five out of six models and marginally significant in the remaining model, but the coefficient of bilateral aid came out statistically insignificant in all but one model. These results suggest that multilateral aid has helped lower corruption in the sample countries, but bilateral aid has not. Coefficients of the other variables (e.g. educational attainment, economic development, regional differences, rule of law, etc.) turned out essentially similar to the original results presented in Tables 2-3.

As evident from the regression results presented in all four tables (Tables 2-5), the estimated coefficients of all explanatory variables show good robustness. The coefficients of foreign aid, multilateral aid, rule of law, and political stability appear statistically significant with the correct *a priori* signs in almost all model specifications, but the coefficients of bilateral aid, educational attainment, economic development and

regional differences consistently come out statistically insignificant. The diagnostic statistics (Wald χ^2) show that the models have satisfactory statistical properties. The Breusch-Pagan test statistics (not reported in the tables) indicate the presence of random effects in all model specifications, which justify the selection of the GLS-Random Effects methodology. The diagnostic details are available from the author.

Table 5: Impact of Multilateral Aid and Bilateral Aid on Corruption

Explanatory Variables	Model 4		Model 5		Model 6	
	Coeff.	z stat	Coeff.	z stat	Coeff.	z stat
Intercept	-0.02	-0.03	-0.15	-0.24	-0.80	-1.12
Multilateral Aid	0.05	2.05**	0.05	1.90*	0.05	1.96**
Bilateral Aid	0.01	0.54	0.01	0.44	0.04	1.96**
Educational Attainment	0.02	0.88	0.02	0.75	0.03	1.30
Economic Development	-0.04	-0.54	-0.03	-0.48	0.03	0.39
Regional Differences	-0.04	-0.25	0.05	0.30	0.04	0.32
Rule of Law	0.62	6.44**	0.53	4.81**	0.70	7.12**
Accountability	0.14	1.95*				
Political Stability			0.08	1.77*		
Economic Freedom					0.01	0.21
Diagnostic Statistics	n = 110		n = 110		n = 99	
	Wald χ^2_7 = 67.5 (P value = 0.00)		Wald χ^2_7 = 64.9 (P value = 0.00)		Wald χ^2_7 = 73.8 (P value = 0.00)	

**Coefficient statistically significant at 5%; *Coefficient statistically significant at 10%

*Notes: Table 5 re-estimates all models presented in Table 3 by disaggregating total foreign aid into multilateral aid and bilateral aid. The coefficient of multilateral aid turns out positive and statistically highly significant, but the coefficient of bilateral aid came out statistically insignificant (except in Model 6). These results again suggest that multilateral aid has helped lower corruption in the sample countries, but bilateral aid has not. **Coefficient statistically significant at 5%; *Coefficient statistically significant at 10%*

The main results found in this study suggest that foreign aid has helped reduce corruption in the sample countries. This result accords with the hypothesis that the aid donors can force the recipient governments to initiate/strengthen anti-corruption reforms by attaching pre-conditions on aid packages, and furthermore watchful scrutiny by the aid donors can lead to enhanced accountability of the recipient governments. When total foreign aid is disaggregated into multilateral aid vs. bilateral aid, it is found that the effect of multilateral aid on reducing corruption is stronger than that of bilateral aid. This result accords with the hypothesis that, since the launch of the Anti-Corruption Movement by the multilateral organization in the late 1990s, foreign aid from these organizations has been generally tied to the recipient governments' commitment to fighting corruption, but bilateral aid is mostly dictated by the strategic self-interests of the donor countries, which for the most part is not related to the success/failure of anti-corruption movement in the recipient countries.

Several other variables (e.g. rule of law, political stability and accountability) are found to be very strong deterrents of corruption in the sample countries. These variables contribute to an overall environment that diminishes rent seeking opportunities for corruption. Two important variables (educational attainment and economic development) are found to have no significant impact on corruption. It is possible that the proxy variables used for these variables (the percent of GDP spent on public education and the natural log of per capita GDP) do not adequately capture the actual impact of these variables on corruption. Future studies may explore alternative proxies for these two variables. Finally, it is found that there exists no significant regional difference between the effects of any type of aid (total, multilateral and bilateral aid) on corruption in South Asia vis-à-vis East Asia. This is not surprising given that these two regions are within close geographical proximity (for example, China borders as many as four South Asian countries included in this study - India, Pakistan, Nepal and Bhutan) and are also somewhat similar in terms of their economic performance and cultural traits.

CONCLUSIONS

The primary goal of this study was to analyze the effects of foreign aid on corruption in developing countries. In theory, foreign aid can breed corruption in the recipient countries by creating rent seeking activities, but on the other hand, foreign aid can also help curb corruption by improving the quality of governance. To test these hypotheses, several GLS-Random Effects models are estimated with 1996-2013 annual data from 14 developing countries in South Asia and East Asia.

The main results found in this study suggest that foreign aid helps lower corruption in the sample countries, and that multilateral aid reduces corruption more effectively than bilateral aid. These results lend credence to the view that accountability of the recipient governments can be enhanced by aid donors, who can enforce strict rules and conditions on the recipient governments and limit the discretion of their public officials, which in turn lowers corruption. Furthermore, the donors can help reduce corruption by stipulating specific anti-corruption reforms that need to be undertaken by recipient countries. As discussed in a previous section, major international organizations (e.g. UN, IMF, World Bank, etc.) embarked on an "Anti-Corruption Movement" in the late 1990s with the explicit objective of promoting the agenda of transparency and government accountability in developing countries. Since the launch of the ACM, multilateral aid has been generally tied to the recipient governments' commitment to fighting corruption, but bilateral aid is dictated primarily by the donors' strategic geo-political self-interests. Results found in this study make a positive case for the ACM in that it seems to have been successful in diminishing corruption in the sample countries. Therefore, major international organizations should continue to give the ACM a high priority and push the aid-recipient governments to seriously commit themselves to anti-corruption reforms.

The results also suggest that rule of law, political stability and accountability are strong deterrents of corruption. Therefore, to succeed in their fight against corruption, the developing countries should focus on strengthening their legal, civil and political institutions (which is also beneficial to the developing countries on their own merits). One possible limitation of the study is in the selection of the particular proxy variables for educational attainment and economic development. The study did not find any significant effect of educational attainment and economic development on corruption which is counter-intuitive. This could be due to specific proxy variables used that possibly did not adequately capture the actual impact of these variables on corruption. Future studies may explore alternative proxy variables. As an avenue for further research, it will also be interesting to investigate whether the negative aid-corruption relationship found in this study holds out for other developing regions (e.g. Africa and Latin America).
The research theme of this study is important as a deeper understanding of the aid-corruption dynamics is vital for designing strategies to promote long-term economic efficiency in developing countries.

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BIOGRAPHY

Dr. Rahim Quazi is Professor of Economics and Director of the Center for International Business Education at Prairie View A&M University, Texas. He earned a Ph.D. in economics from the University of Illinois, Urbana-Champaign and a BA in economics from Illinois Wesleyan University. He has published over 30 scholarly articles in peer-reviewed journals. Dr. Quazi has received a number of external grants from the U.S. Department of Education, United Negro College Funds, Lumina Foundation, and Ford Foundation/Social Science Research Council. He can be reached at College of Business, Prairie View A&M University, Prairie View, TX 77446, rmquazi@pvamu.edu.

Dr. Arshad Alam is Assistant Professor of Management at Prairie View A&M University, Texas. After completing his MBA from India, Dr. Alam worked for many years in leading organizations in India before moving to the US. He received his Masters in Information System Technology and a Ph.D. in Logistics and

Supply Chain from The George Washington University, USA. His primary research interests are in Supply Chain Management and International Business. He has published in several academic journals. He can be contacted at College of Business, Prairie View A&M University, Prairie View, TX 77446, aralam@pvamu.edu.

Dr. Sudhir Tandon is the Interim Head of the Department of Management and Marketing and Associate Professor of Marketing at Prairie View A&M University. He earned a Ph.D. in marketing from the Texas Technological University. Dr. Tandon has published several research articles in refereed journals, presented research in professional conferences, and received prestigious honors such as the American Marketing Association Doctoral Consortium Fellowship and Nissan Motor Co. Fellowship. He can be reached at College of Business, Prairie View A&M University, Prairie View, TX 77446, sutandon@pvamu.edu.