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### The Allocation of Net Official Development Assistance: The Role of Corruption and Influence on Standard of Living

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**The Allocation of Net Official Development Assistance:**

**The Role of Corruption and Influence on Standard of Living**

By

Jessica Torres

A Thesis Submitted to

Department of Economics

Skidmore College

In Partial Fulfillment of the Requirement for the B.A Degree

Thesis Advisor: Qi Ge

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## **Abstract**

This paper utilizes data from The World Bank Group's Foreign Aid Effectiveness indicators to analyze the determinants of official development assistance aid to countries that are considered more or less corrupt. I utilize an OLS population regression function, with fixed effects, time series models, and an instrumental variable, as determined by the existing literature and my own determinations. My results indicate that the population's accessibility to improved sanitation facilities and school enrollment of children in primary and secondary schools are statistically significant indicators of net official development assistance allocation to countries, regardless of their perceived corruption rating. These findings suggest that in order to properly allocate official development assistance aid, The World Bank Group should consider the indicators of accessibility to improved sanitation facilities and school enrollment in future policymaking decisions and allocations of aid.

## **I. Introduction**

The role of net official development assistance in an impoverished country's development is critical, however multiple determinants affect the allocation and effect of the aid allocation. Net official development assistance is widely used as an indicator of international aid flow. The majority of official development assistance is handled by the Development Assistance Committee (DAC) of the Organization for Economic Co-operation and Development (OECD) in order to measure the allocation of aid. By definition, official development assistance is identified as flows of official financial aid that are administered with the intent to promote economic development and welfare of developing countries (OECD, 2003).

Furthermore, official development assistance flows are comprised of contributions of donor government agencies to developing countries, which is referred to as "bilateral official development assistance" (OECD, 2003). This bilateral official development assistance can go either to developing countries or multilateral institutions. In this way, any lending by export credit agencies (for example, intended to go towards military purposes) is excluded from the overall understanding of official development assistance, as defined by the OECD (2003). Additionally, aid can be provided bilaterally from donor to recipient, or channeled specifically through a multilateral agency that focuses on economic development, such as the United Nations or the World Bank Group.

This multilateral aid can include grants, "soft" loans, and provisions of technical assistance. By "soft" loans, the OECD (2003) states that loans are considered to be this way when the grant element is at minimum 25% of the total. The OECD maintains the list of developing countries and territories, and it is solely the aid that is given to those specific countries that can be considered official development assistance. The list of developing countries

and territories is routinely updating and at present contains over 150 countries or territories that have per capita incomes which are below USD 12 276, as of 2010 (OECD, 2003). One of the major targets of the United Nations is the notion that developed countries will allocate 0.7% of their gross national income (GNI) to official development assistance for the developing countries and territories. The indicator of net official development assistance utilized in this research is measured as a percentage of gross national income and million USD constant prices, which selects 2014 as the base year (OECD, 2003).

The study of net official development assistance is significant since the foreign direct investment involved can directly affect a country's economy, military, society, and foreign policy. A prevailing theme in the literature is to analyze the allocation of aid in correlation to the level of corruption or political instability within the recipient country. In this paper, my research question is: How does the inclusion of standard of living indicators affect the allocation of official development assistance? I hypothesize that the increase of variables concerning school enrollment, poverty headcount ratio, and access to sanitation facilities will have a positive statistical effect on the overall allocation of official development assistance. The rationale for this hypothesis will be further explained in the concluding section of the literature review. This paper will be organized with the following sections. In the first section, I review literature that can be organized in four specific sections. Firstly, the connection between foreign aid and corruption. Secondly, the quality of institutions and the role of international organizations. Thirdly, the effect of foreign aid on standard of living. In these three sections, I am able to highlight the three major themes that are prevalent in the literature concerning development economics and the perceived gaps in the literature that my own paper will attempt to resolve.

The second section of this paper is the section concerning data and methodology. I explain my methodological processes of utilizing the *Corruption Perceptions Index* (CPI) from *Transparency International* to collect data on countries that are considered more or less corrupt. In this paper, I analyze the countries of Bangladesh, Iran, Pakistan, Colombia, Morocco, Brazil, India, South Africa, Costa Rica, Botswana, Slovenia, Bhutan, Chile, and Uruguay. These 14 countries represent eight more corrupt countries and then six less corrupt countries, respectively. Then, my use of an Ordinary Least Squares (OLS) population regression function is explained further in the section concerning data. In this section, I explain the rationale behind using an OLS population regression function, fixed effects regressions, time series regressions, and instrumental variables to account for endogeneity bias. As a major part of my paper, I fully explain the role of endogeneity bias both in economics and then specifically in conjunction with my research. I provide two tables, the first being summarized statistics of my data (Table 1), and the second providing the reader with the results and significance of my data (Table 2). Conclusively, this paper's final section is the discussion of results. In this section I relate my results back to the literature previously analyzed, detail my contributions to the literature, and will attempt to answer my research question. Finally, I provide detail concerning policy implications, and address some of the major limitations of my research as well as propose ways to improve on this research for future projects.

## **II. Literature Review**

### **Section 1: The Connection Between Foreign Aid and Corruption**

Countries with a history of corruption that receive foreign aid raise a controversial debate of ethical aid allocation. Undertaking this critical assessment, Mamoon (2015) analyzed how the

contemporary political instabilities of the aid receiving countries effect donors' allocation of aid either directly or indirectly by interacting with the remaining determinants of foreign aid which in turn determine foreign aid allocation (2015). In his paper, Mamoon (2015) acknowledges foreign aid as a redistribution of resources from developed countries to developing countries. He recognizes additional factors such as donors' altruistic tendencies, the influence of trade openness of the recipient country, and whether the recipient country is an exporter of oil or not (Mamoon, 2015).

Mamoon (2015) determines a disparity in the existing literature--- the existence of instabilities, whether political, economic, or social, can affect the aid allocation of donors. He believes major determinants of aid allocation to be the needs of recipients, merit, recipients' vulnerability to external shock, and the interest of the donors involved. For these exogenous variables, Mamoon (2015) defines the recipients' need variable as the per capita income of the recipient countries. The merit variable is defined by openness and democracy of the recipient country, and the variable for donors' interest is represented by the occurrence of donors granting more aid to oil exporting countries, arms importing countries, and recipient countries which have a colonial past. Conclusively, Mamoon (2015) defines donors' perspectives toward political instability in the recipient countries on five facets: the type of political risk, recipient countries' per capita income, level of democracy, population, and acknowledgement of whether or not the country is an oil exporter. To further analyze the donors' attitudes towards instabilities, Mamoon (2015) utilizes eight risk indices from the *International Country Risk Guide*: government stability, ethnic tension, law and order, bureaucratic quality, corruption, military in politics, religion in politics, and socioeconomic condition. Unfortunately, Mamoon (2015) never further explains how the *International Country Risk Guide* characterizes each of these eight indices.

This is an identifiable weakness in his article since he repeatedly utilizes these eight indices without further definition in his fixed effect and random effect models (Mamoon, 2015).

Mamoon (2015) utilizes a fixed effect and random effect approach to estimate models that clarify the aid allocation of net per capita Official Development Assistance (ODA). He has a sample of 50 developing countries, but does not share what criteria he utilizes to determine those 50 countries---a flaw of his paper. When specifying the model, Mamoon (2015) determines the following regression for the fixed effect approach:

$$\ln ACAP_{it} = \alpha_i + \beta_1 R_{jit} + \beta_2 N_{it} + \beta_3 S_{it} + \beta_4 M_{it} + \beta_5 \ln P_{it} + \varepsilon_{it}$$

In this model,  $ACAP_{it}$  is the dependent aid per capita variable,  $R_{jit}$  represents the eight risk indices with  $j$  denoting the type of risk,  $N_{it}$  is the corresponding set of recipient countries' needs, and  $S_{it}$  represents the donors' strategic interest. The merit variables are represented by  $M_{it}$  and the recipient countries' population is indicated by the variable  $P_{it}$ . To account for the bias that would be present in small countries, the variable for population is utilized (Mamoon, 2015). For the random effect model, Mamoon (2015) determined the following regression:

$$\ln ACAP_{it} = \alpha + \beta_1 R_{jit} + \beta_2 N_{it} + \beta_3 S_{it} + \beta_4 M_{it} + \beta_5 \ln P_{it} + \mu_{it} + \varepsilon_{it}$$

In this regression, the aforementioned variables represent the previously defined terms. The variable  $\mu_{it}$  has been added to account for the random effect. Additionally, the intercept in this regression,  $\alpha$ , is constant. Based on the models, Mamoon (2015) found a negative relationship between corruption and aid flow. This indicates that while donors have a lack of tolerance for political corruption, there is a positive association between aid flow and the corruption level of the recipient country. Some aspects of the study are questionable--- namely

the relationship between aid flow and governance indicators specific to government stability, law and order, and bureaucratic quality. In his conclusion, Mamoon (2015) determines that the positive significance of poor governance and the corresponding insignificance of the socioeconomic status on aid flow argue that donors are motivated by self-interest rather than an altruistic nature (Mamoon, 2015). Since an unstable political and economic government can logically lead to an impoverished country in need of foreign aid, the positive relationship between poor governance and increased foreign aid granted is clear. This paper relates to my research because I am analyzing the relationship between corruption and a form of foreign aid, specifically net official development assistance. While I utilize a fixed effect regression, I do not utilize a random effect approach; Mamoon's (2015) accountability for the high multicollinearity problem with the eight indices is reminiscent of the endogeneity issues that my own research will account for in the data and methodology section.

In contrast to Mamoon (2015), Lopez (2015) makes a critical distinction between types of foreign aid and specifies her research to analyze bilateral Official Development Assistance (ODA). Additionally, she acknowledges the controversies of aid effectiveness and the internal conflicts over possession of the 'free' resource (Lopez, 2015). While the formation of a bureaucracy in the recipient country is crucial for the allocation of aid, exploitation opportunities develop in response. In this way, recipient incentives to encourage reform may be adversely affected by the occurrence of moral hazard whereby doing so could compromise future aid flows (Lopez, 2015). Further expanding her analysis of preliminary factors that limit a country's growth, Lopez (2015) highlights increasing debt burdens, government appeasement of donor countries, and the Dutch disease. Unfortunately, Lopez (2015) does not define 'Dutch disease' in her paper; nonetheless, in contemporary economics it is a perceived causal relationship between

the increase in the economic development of a particular sector and the decline in other sectors. Specifically, the term can refer to any discovery of a natural resource or development that would result in a large inflow of foreign currency (*The Economist*, 2014).

Lopez (2015) makes exemplary effort in detailing how she measures poor governance and corruption. She accounts for depreciation in the total portion of aid reaching the intended recipients, retention by the government for private gain, and bureaucratic distribution costs. When Lopez (2015) provides modern examples of political favoritism, she briefly references Zambia, Malawi, and Somalia, but does not reference her reasoning for identifying those countries. Lopez (2015) insists that bilateral aid's interaction with corruption varies across sectors, a concept that she states previous literature has not considered. She critiques multiple authors for their lack of control for endogeneity in the models; Lopez (2015) utilizes a fixed effects econometric analysis to account for endogeneity between aid and corruption. She specifies her measure of corruption using the *World Bank Control of Corruption* scores, which differs from my own use of the *Corruption Perceptions Index*.

For methodology, Lopez (2015) measures the effects of donor interest, needs of recipients, and corruption on aid allocation decisions at three levels: donor, recipient, and year. The lone variable of interest is corruption, whereas the dependent variables are total aid, sector specific aid, and sector specific aid viewed as a percentage of the total aid from a donor to recipient in a specified year (Lopez, 2015). Taking advantage of the sector specific data, Lopez (2015) analyzes results for six sectors: humanitarian aid, economic infrastructure and services, social infrastructure and services, production sector aid, commodity and general budget assistance, and action related to debt. She utilizes multiple sets of regressions that include pooled

OLS and fixed effects regressions, having accounted for standard errors at the aforementioned donor level. The pooled OLS equation that Lopez (2015) estimates is:

$$ODA_{ijt} = \theta + \alpha r_{ijt} + \beta t_{jt} + \lambda w_{it} + \delta x_{ij} + \psi y_i + \xi z_t + c_{it} + u_i + \varepsilon_{ijt}$$

In this model,  $ODA_{ijt}$  is the dependent Official Development Assistance variable,  $i$  represents recipient,  $j$  denotes donor, and  $t$  represents time. The constant is represented by  $\theta$ , percent imports and U.S. military interest are denoted by  $r_{ijt}$ , and donor gross domestic product (GDP) is represented by  $t_{jt}$ . The  $w_{it}$  represents refugees, natural disasters, civil war, population, democracy, corruption, and recipient GDP. The  $x_{ij}$  denotes colony and United Nations' voting similarity,  $y_i$  represents energy and region, and  $z_t$  denotes year. The variables  $c_{it}$  and  $u_i$  represent omitted recipient need; unfortunately, Lopez (2015) does not provide reasoning for the duplicity of two variables for one meaning. Finally,  $\varepsilon_{ijt}$  represents the error term.

Lopez (2015) utilized aggregate regressions, pooled OLS regressions, and fixed effects regressions for every donor to report estimates on the corruption variable. For each of these regressions, she lags all time variant explanatory variables by one year. Lopez (2015) acknowledges that since the dependent variables represent donor commitments, the lagged independent variables provide the most accurate decision making environment of donors. Regrettably, she does not provide rationale for the allocation of multiple definitions within a single variable, as denoted by  $w_{it}$ . Lopez (2015) believes that the random effects regression analysis will correct for omitted, individual random effects; however, she comments that bias may still develop in the relationship between corruption and omitted recipient need variables. Conclusively, Lopez (2015) determines that donors give more corrupt recipients more aid for the sector of humanitarian assistance, and less aid to their sectors of production and social

infrastructure. The results of Lopez's (2015) research differ from Mamoon's (2015), since Lopez (2015) is able to specify her data at the sector level. She focuses further detail on the insufficient bureaucracies within the aid recipient countries, stating that while donors can provide immediate relief, no initiatives in long-term growth perpetuate the cycle of aid dependence. Since I use a fixed effects approach for my methodology, Lopez's (2015) exemplary focus on accounting for endogeneity is admirable. Her calculations are relevant to my research because I utilize a time lag in the creation of my instrumental variable, which is further discussed in the data and methodology section.

## **II. Literature Review**

### **Section 2: The Quality of Institutions and the Role of International Organizations**

In an attempt to analyze why corrupt governments may receive more foreign aid, de la Croix and Delavallade (2014) researched the quality of institutions and variations in productivity levels. Their paper distinguishes corruption as an equilibrium phenomenon and the corresponding institutional determinants as exogenous. In this way, the analysis of de la Croix and Delavallade (2014) is in contrast to the work of Mamoon (2015). Mamoon (2015) focused his analysis on the political instabilities of recipient countries, but did not expand to discuss institutional quality. The concept that the most corrupt countries receive the largest amounts of foreign aid because they are also the poorest, is not a novel idea in the existing literature; thus the paper analyzes if poverty selectivity outweighs policy selectivity and provides theoretical and empirical support (de la Croix and Delavallade, 2014). Primarily, the authors state that the correlation between aid and corruption should be negative; however, this can be balanced by a 'productivity effect.' The association of lower levels of productivity with higher levels of

corruption and optimal aid leads to a positive correlation between aid and corruption (de la Croix and Delavallade, 2014).

An instrumented three-stage least squares method is utilized to account for potential endogeneity biases within the model. In this paper, there are four instrumental variables correlated with productivity or the quality of institutions. The instrumental variables are: the 20-year lagged log of GDP per capita (or per worker in this data), the five-year lagged log of trade openness (the sum of imports and exports as a percent of GDP), the 20-year lagged illiteracy rate, and the log of the number of years after independence (de la Croix and Delavallade, 2014). The authors then ran a Sargan-Hansen overidentification test which suggests that the instruments are not correlated with the error terms for the first three measures of political stability, rule of law, and government effectiveness.

In conclusion, despite the claim that multilateral organizations determine foreign aid on institutional quality and reforms of the recipient country, the correlation between foreign aid and corruption is positive (de la Croix and Delavallade, 2014). This result is similar to Lopez's (2015) result in which she analyzed aid allocation at three levels: donor, recipient, and year. Of course, it is not the same conclusion since de la Croix and Delavallade (2014) evaluated their data at the institutional level. This paper is applicable to my own research since the authors utilized multiple instrumental variables, an approach I use to account for endogeneity issues. Additionally, the specific use of a 20-year lagged literacy rate as an instrumental variable is intriguing since I am using similar variables to measure the effect of foreign aid on the recipient country's standard of living in my own research.

In transition from the work of de la Croix and Delavallade (2014) on the role of multilateral organizations' influence on foreign aid, Charron (2011) examines the effect of the

‘anti-corruption movement’ in the 1990s on major international organizations. He distinguishes different types of ODA, both multilateral and bilateral, to determine any impact on the quality of governance. Charron (2011) defines ‘good governance’ indicators as democracy, bureaucratic quality, or corruption; he further acknowledges the perception that bilateral ODA is tied to political agenda whereas multilateral ODA is relatively more impartial. He utilized the Political Risk Services Group’s *International Country Risk Guide* to measure for corruption; this is in contrast to Lopez (2015) who references the *World Bank Control of Corruption* scores, and differs from my own use of the *Corruption Perceptions Index*. Charron (2011) states that the corruption index data from the World Bank and Transparency International was too finite for the range he needed to test his hypotheses.

To account for potential endogeneity problems, Charron (2011) determines that an OLS regression would not be the optimal regression. He states that when endogeneity occurs due to reverse-causality, one of the assumptions in the Gauss-Markov Theorem is violated. Since the assumption ( $E(u|x)=0$ ) is violated, the regression can no longer be the best linear unbiased estimator (Charron, 2011). Instead, Charron (2011) utilizes a two-stage least squares regression; lagged variables of the different types of ODA are instrumented variables with ‘predetermined’ facts such as colonial heritage, geography, and history of corruption. Secondly, he runs regressions using Generalized Method of Moments (GMM) estimation to account for endogeneity issues and potential heteroskedasticity problems.

Unfortunately, Charron (2011) does not clearly state his regression function, which makes the emphasis on certain variables unclear. The results confirm Charron’s (2011) hypothesis that multilateral aid after the anti-corruption movement (ACM) is associated with a decrease in corruption. Furthermore, the results show that multilateral aid pre-ACM was not

effectively combatting corrupt practices, whereas post-ACM was efficient. Unfortunately, while Charron (2011) claimed that it is not possible to measure the ACM directly, the counterfactual problem was not able to be resolved within his paper. This paper relates to my research because I account for the role of time in my determination of an instrumental variable. Charron's (2011) empirical research provides me with foundational knowledge of an ethical shift for the international organizations, which is critical to my understanding of how corruption is viewed at different levels such as donor, recipient, and international organization.

## **II. Literature Review**

### **Section 3: The Effect of Foreign Aid on Standard of Living**

The comprehension of determinable characteristics that form the modern definition for 'standard of living' has shifted over time, and will likely continue to be both contested and further defined. In the late 20<sup>th</sup> century, the standard of living emphasized concerns over the national income (Steckel, 1995). Specifically, the standard of living as understood by Steckel (1995) considers per capita income and height patterns in slave children. While I have seen the variable of per capita income mentioned regularly in the literature, a weakness of Steckel's (1995) paper is the endogeneity problem in the height calculations. I find his use of this variable arguably less relevant than other variables such as literacy rate and school enrollment. In a paper thirteen years after his aforementioned work, Steckel (2008) critiques authors who primarily focus on gross domestic product as a measure for the standard of living. Instead, he broadened the scope of his research to include four biological measures: life expectancy, morbidity, stature, and certain features of skeletal remains (Steckel, 2008). This simple example highlights the concept that as the characteristics that measure 'standard of living' evolve, even one individual's

perceptions of the term have expanded as well. Thus, it is crucial to be cautious of the variables authors select to highlight their results since the majority, if not entirety, can be contested.

It is possible that an attempt of development aid is to help impoverished countries converge to the standard of living typically found in donor countries. Since aid flows are included in the standard convergence equation, relevant literature can be found which is related to convergence (CL) and aid effectiveness (AEL) (Herbertsson and Martin, 2005). Within AEL, it is possible to distinguish between two groups, as understood by the division hypothesis; the aid recipients are separated if aid increases or harms growth. Unfortunately, Herbertsson and Martin (2005) develop more questions than they answer---the only result is that income was the most significant variable for dividing countries according to the division hypothesis; this result coincides with Steckel's (1995) rationale.

In contrast to the aforementioned authors on standard of living, Tezanos Vazquez (2015) perceives public foreign aid as a tax mechanism to redistribute income on a worldwide scale, exemplified by the *distributive justice theory*. In this way, aid policy can be utilized as a tool to achieve greater international distributive justice. Vazquez (2015) raises two questions: firstly, how fairly is the aid financial burden distributed among donor countries? Secondly, how fair is the eventual allocation of aid resources among recipient countries (2015)? Within these quandaries, two concepts arise: *horizontal equity* (people in equal positions should be treated equally) and *vertical equity* (people in unequal positions should be treated unequally). While *horizontal equity* is typically agreed upon, the principle of *vertical equity* is more controversial (Vazquez, 2015). This issue persists in the literature and creates a larger fissure since the relationship between the two equities needs to occur simultaneously in order for either one to be effective. Vazquez (2015) continues to highlight the justice and tax system issues amongst the

literature, which is irrelevant to my research. Conclusively, Vazquez (2015) determines that transparent and progressive aid exaction is possible, and optimal in the form of income taxes on earnings. Additionally, he remarks that the time-sensitive opportunity in 2015 to replace the United Nations' Millennium Development Goals is optimal to enact new legislation on distributive justice.

Similarly, Razaq (2014) references the United Nations' Millennium Development Goals to examine the controversies surrounding ODA. She contests that the 2005 instance of the G8 leaders doubling assistance to countries facing chronic poverty warranted discontent among donors and recipients. The negative side effects of large aid-inflows, such as the Dutch Disease, are appreciation of the exchange rate and salary inflation (Razaq, 2014). This issue was highlighted by Lopez (2015), and reiterates the notion that imports cannot gratify the increased demand due to limitations in supply (Razaq, 2014). Similarly, Mamoon (2015) and Razaq (2014) utilize the variable of trade openness to measure growth and maturation; however, Razaq (2014) considers the variables of remittances as percentage of GDP, foreign direct investment, poverty, income per capita, and information and communication technology as well. Her research is centralized on how to 'attack poverty' across multiple facets: increasing opportunity, enhancing empowerment, and improving security in order to increase the assets of impoverished people, deconstruct social barriers, and manage risk in the markets. Razaq (2014) selects the four economies of Bangladesh, India, Pakistan, and Sri Lanka to estimate the model:

$$PCI_{it} = \beta_0 + \beta_1 FDI_{it} + \beta_2 REMT_{it} + \beta_3 TOP_{it} + \beta_4 ICT_{it} + \varepsilon$$

In the regression  $PCI$  denotes per capita income,  $FDI$  represents foreign direct investment, and  $REMT$  denotes remittances. The variable  $TOP$  represents trade openness and  $ICT$  denotes information and communication technology. Conclusively, Razaq's (2014) results

show that to raise the per capita income and standard of living in south Asia, the external inflows should be managed so that they positively affect all aforementioned parts of the economic system. This paper is beneficial for my research because it analyzed the relevance of multiple variables aside from the common per capita income variable. Since I analyze economic determinants of growth in combination with variables that measure standard of living, the aforementioned literature has aided me in determining my methodology.

### **III. Data and Methodology**

The data for this research was primarily sourced from *The World Bank Data*, specifically indicators for aid effectiveness, economy and growth, education, and the financial sector. This source is optimal for my research because the general mission of the World Bank Group is to provide countries with foreign aid, which is a major aspect of net official development assistance. To determine countries that are more and less corrupt, the *Corruption Perceptions Index 2016* provided by *Transparency International* is used for reference. In contrast, Mamoon (2015) utilizes eight risk indices from the *International Country Risk Guide*: government stability, ethnic tension, law and order, bureaucratic quality, corruption, military in politics, religion in politics, and socioeconomic condition. Furthermore, Charron (2011) also utilized the Political Risk Services Group's *International Country Risk Guide* to measure for corruption. Comparatively, Lopez (2015) references the *World Bank Control of Corruption* scores, which differs from my own use of the *Corruption Perceptions Index*. Charron (2011) states that the corruption index data from the World Bank and *Transparency International* was too finite for the range he needed to test his hypotheses.

However, for my research *Transparency International* is an exceptional measure of corruption due to their accessible accountability, corporate ethics, and vigilance both internally and externally. *Transparency International* identifies itself as a politically non-partisan independent organization. They are the sole director of their programs and activities, and do not allow donors to have input on any of their policies. The organization's sources of funding are transparent and available online to anyone, and the organization's spending is transparent as well. In order to combat the global occurrence of corruption, *Transparency International* has worked and continues to work towards the goals of: the creation of international anti-corruption conventions, the prosecution of corrupt leaders and seizures of their illicitly gained riches, national elections won and lost on tackling corruption, and holding companies accountable for their behavior both at home and abroad (Transparency International, 2016).

*Transparency International* prioritizes advancing accountability, integrity, and transparency in the international community as well as within their own internal operations. In effect, *Transparency International* attempts to set a high standard for good governance, ethical practice, and openness to greater transparency. Available to the public online, the organization's funding and financials includes detailed lists of donors, the donation policy in general, and audited financial statements. Additionally, internal operations are examined by an external third party in order to demonstrate extended accountability (Transparency International, 2016).

In order to analyze the relationship with my chosen dependent variable, net official development assistance, I selected six independent variables. Primarily, the net official development assistance dependent variable is measured per capita and quantitatively measured in current USD. Specifically, net official development assistance (NODA) per capita consists of disbursements of loans made on concessional terms and grants by official agencies. These

agencies would be under the oversight of the members of the Development Assistance Committee (DAC), by multilateral institutions, and by non-DAC countries; the main goal is the promotion of economic development and welfare in countries and territories that are listed in the DAC list of NODA recipients. The overall values are calculated by dividing net official development assistance received by the midyear population estimate (The World Bank Group, 2017).

The first independent variable I selected to include in my regression is gross domestic product (GDP) per capita growth, measured in an annual percentage. This annual percentage growth rate of GDP per capita is based on the constant local currency; aggregates are based on constant 2010 USD. Quantitatively, the GDP per capita is divided by midyear population; the GDP at purchaser's prices is the sum of gross value added by the summation of resident producers in the economy plus any product taxes. The subsidies are not included in the value of any of the products. The value for this variable is calculated without making deductions for depreciations of fabricated assets or for depletion and degradation of natural resources. Within the aforementioned literature, Lopez (2015) utilized gross domestic product within his regression as a variable to measure the role of corruption in foreign aid allocation. Additionally, Steckel (2008) critiqued economists who use GDP as the primary independent variable. Steckel's (2008) critique of regressions that utilized solely GDP led me to add two other independent variables to my regression that would lead to a well-rounded data profile of the dependent variable of net official development assistance (The World Bank Group, 2017).

The second independent variable that I selected was foreign direct investment, specifically the direct investment equity flows in the reporting economy. Foreign direct investment (FDI) is the sum of equity capital, reinvestment of earnings, and additional capital.

Direct investment can be considered a category of cross-border investment that is associated with a resident in a sole economy that has control or significant influence on the management of an enterprise that resides in a different economy. In the determination of the existence of a direct investment relationship, there must be ownership of 10 percent or more of the ordinary shares of voting stock; the data is quantified in current USD (The World Bank Group, 2017). In the literature, the variable of FDI was utilized by Razaq (2014).

The third independent variable that I selected to include was remittances. Personal remittances comprise personal transfers and compensation of employees. Personal transfers are considered to consist of all current transfers in cash or in a type made or received by resident households to or from nonresident households. Therefore, personal transfers include all current transfers between resident and nonresident individuals. The compensation of employees refers to the income of border, seasonal, and additional short-term workers who are employed in an economy where they are not registered as residents nor residents employed by nonresident entities. The data are a summation of two items defined by the International Monetary Fund's Balance of Payments Manual: specifically, personal transfers and compensation of employees; the data is provided in current USD (The World Bank Group, 2017). The idea to utilize this independent variable spurred from Razaq (2014), who utilized the variable in her own regression.

The fourth independent variable that I selected to include in my regression was school enrollment, specifically primary and secondary school enrollment. The gender parity index for gross enrollment ratio in primary and secondary education is the ratio of girls to boys who are enrolled at the primary and secondary school levels in both public and private schools (The World Bank Group, 2017).

The fifth independent variable that I selected for my regression was poverty headcount ratio. Specifically, poverty headcount ratio at \$1.90 a day is the percentage of the population that lives on less than \$1.90 a day at international prices in 2011. Due to the revisions in purchasing power parity (PPP) exchange rates, poverty rates for individual countries cannot be compared with poverty rates that have been reported prior to 2011 (The World Bank Group, 2017).

The sixth and final independent variable that I chose to analyze is the accessibility of improved sanitation facilities. Specifically, this variable displays the percentage of the population that is using improved sanitation facilities. The improved sanitation facilities are likely to ensure hygienic separation from human waste from contact with the population. This metric includes flush and pour flush systems, with waste sent to piped sewer systems, septic tanks, pit latrines, and other vessels of containment. Additionally, this variable includes ventilated improved pit (VIP) latrines, pit latrines with slabs, and composting toilets (The World Bank Group, 2017). To my knowledge, my paper is one of few in the current literature that examines the effect of the combination of these independent variables on the overall allocation of net official development assistance. Specifically, the contributions of my paper can be seen by my inclusion of the three latter independent variables (school enrollment, poverty headcount ratio, and access to improved sanitation facilities) that develop my immediate concerns towards a country's standard of living.

In determining my approach, I chose to follow the fixed effect approach utilized by Mamoon (2015), who utilized the fixed effect regression to account for the use of panel data. Additionally, Lopez (2015) utilized both a pooled OLS regression and fixed effect regressions; she utilized an econometric analysis to account for endogeneity between foreign aid and

corruption. In order to analyze the allocation of net official development assistance, I have formed the following OLS population regression function for the panel data:

$$NODA_{it} = \beta_0 + \beta_1 GDPpcg_{it} + \beta_2 FDI_{it} + \beta_3 REM_{it} + \beta_4 SCH_{it} + \beta_5 PHR_{it} + \beta_6 ISF_{it} + \gamma_i + \varepsilon_{it}$$

In this regression,  $i$  represents the recipient country and  $t$  represents time. These denominations are important since I am studying the effect of net official development assistance on multiple countries, and for the majority of data there is a time lag or annual collection method that needs to be accounted for quantitatively. Next,  $NODA$  is the dependent variable of net official development assistance received per capita, and  $GDPpcg$  denotes Gross Domestic Product, per capita growth. The variable of  $FDI$  represents foreign direct investment (net inflows) and  $REM$  denotes personal remittances (received). Then, to study the effect on standard of living,  $SCH$  represents school enrollment (primary and secondary),  $PHR$  denotes poverty headcount ratio (at percentage of population), and  $ISF$  represents access to sanitation facilities. The variable  $\gamma$  represents fixed effects for each individual country researched. These variables are significant since they develop a detailed comprehension of standard of living; they account for education accessibility, poverty trends, and healthcare access. Finally,  $\varepsilon$  denotes the error term. My choice in using the aforementioned variables is due to a combination of the variables mentioned in the literature, and standard of living variables that represent a holistic comprehension of a country's well being.

For my research, I chose to analyze the effect of net official development assistance in countries that are considered to be more or less corrupt. I utilized *Transparency International's* Corruption Perceptions Index for the measure of corruption in each of the countries. In the Corruption Perceptions Index, countries are allocated a 'corruption score'. If a country is given a corruption score that is between 0 and 50, then the country is considered more corrupt. If a

country is given a corruption score that is between 50 and 100, then the country is considered less corrupt. The least corrupt country on the list, Denmark, has a rating of 90; the most corrupt country on the list, Somalia, has a rating of 10 (Transparency International, 2016). Of course, it is impossible for a country to receive either a 0 or 100, since no country could be proven to be fully corrupt or non-corrupt, as is the nature of corruption. I chose to analyze 8 more corrupt countries and 6 less corrupt countries. For the more corrupt countries, I chose to study: Bangladesh, which had a corruption score of 26, Iran, which had a score of 29, and Pakistan, which had a corruption rating of 32. I also studied Colombia, which had a rating of 37, and Morocco, which had a rating of 37. For the final three corrupt countries, I studied Brazil and India, which both had a corruption rating of 40; I studied South Africa, which had a corruption rating of 45. For the less corrupt countries, I chose to study: Costa Rica, which had a corruption rating of 58, and Botswana, which had a corruption rating of 60. Additionally, I studied Slovenia, which had a corruption rating of 61, and Bhutan, which had a corruption rating of 65. Finally, I studied Chile, which had a corruption rating of 66, and Uruguay, which had a corruption rating of 71 (Transparency International, 2016).

Table 1 depicts the summarized statistics of the overall dependent and independent variables. While I included the summarized statistics for the variables of lagged foreign direct investment (*L.FDI*) and the creation of a variable to distinguish between the different countries in the panel data (*countryI*), I will solely focus on the descriptions of the dependent and independent variables in this summary of Table 1. The highest number of observations is for the gross domestic product per capita growth independent variable, which has 708 observations. The lowest amount of observations is 175, which is for the variable of poverty headcount ratio. The second lowest amount of observations is 364, which is for the variable of access to improved

sanitation facilities (Table 1). Due to this discrepancy in the amount of observations, in Table 2 there are regressions that exclude solely the poverty headcount ratio variable (Models 1, 3, 5), and regressions that include all variables (Models 2, 4, 6). Unsurprisingly, the averages for foreign direct investment and remittances are the largest means; this can be explained by the metrics used for each variable. The average annual percentage growth of gross domestic product per capita growth is 19.257 percent, with a standard deviation of 34.259 percent. Since the summarized statistics are an accumulation of the statistics for both countries that are viewed as more corrupt and less corrupt, it is possible that the large spread in the data is a result of this combination of countries (Table 1). The average school enrollment is 90.3%, with a standard deviation of 20.7% (Table 1).

**Table 1: Summary Statistics**

<b>Variable</b>	<b>Observations</b>	<b>Mean</b>	<b>Std. Dev.</b>	<b>Minimum</b>	<b>Maximum</b>
<i>NODA</i>	678	19.257	34.259	-3.567	366.011
<i>GDPpcg</i>	708	2.664	4.361	-24.461	24.380
<i>FDI</i>	570	3.47e+09	1.08e+10	-4.85e+08	1.01e+11
<i>REM</i>	473	2.95e+09	8.70e+09	0	7.04e+10
<i>SCH</i>	409	0.903	0.207	0.052	1.228
<i>PHR</i>	175	11.763	12.988	0	62.16
<i>ISF</i>	364	67.220	23.696	16.8	99.1
<i>L.FDI</i>	570	3.47e+09	1.08e+10	-4.85e+08	1.01e+11
<i>countryI</i>	798	7.5	4.034	1	14

The regression results utilized in my analysis are shown in Table 2. Model 1 is a fixed effects regression that withholds the poverty headcount ratio variable from the regression. Model

Model 2 is a fixed effect regression that regresses with all of the independent control variables. Model 3 is a time series regression that combines the effect of a fixed effects regression with the change in the independent variables over a specified time period; Model 3 does not include the poverty headcount ratio variable. Model 4 is also a time series regression that combines the effect of a fixed effects regression with the shift in the independent variables over a specified time period; Model 4 includes all of the control variables. For Models 3 and 4, the time series regressions provided results within the time range 1991 to 2014. In order to provide a robust summary of the year range, I selected the results gathered in every five-year period, starting in 1994 and proceeding until 2014. Model 5 utilizes an instrumental variable to account for endogeneity bias; Model 5 does not include the poverty headcount ratio variable. Model 6 utilizes an instrumental variable to account for endogeneity bias; Model 6 includes all of the independent variables. In models 1, 3, and 5, the poverty headcount ratio variable is withheld since that variable has the lowest amount of observations. This action allows the variables that have hundreds of additional observations in comparison to not be further diluted by the addition of the poverty headcount ratio variable. In Models 1,3, and 5, where the poverty headcount ratio variable is not utilized, there are 211 observations for each model. In comparison, for models 2, 4, and 6, which include the poverty headcount ratio variable, there are 94 observations for each model.

**Table 2: Regressions**

<b>Dependent Variable <i>NODA</i></b>						
<b>Variables</b>	<b>Model 1</b>	<b>Model 2</b>	<b>Model 3</b>	<b>Model 4</b>	<b>Model 5</b>	<b>Model 6</b>
	<b>Fixed Effects Some controls</b>	<b>Fixed Effects All controls</b>	<b>Time Series Some controls</b>	<b>Time Series All controls</b>	<b>IV Some controls</b>	<b>IV All controls</b>
<b><i>GDPpcg</i></b>	0.038 (0.323)	-0.830 (0.576)	0.05 (0.318)	-1.584 (0.618)	0.038 (0.318)	-0.830 (0.554)
<b><i>FDI</i></b>	1.91e-10	1.16e-10	-3.10e-11	-5.57e-11	1.91e-10	1.16e-10

	(1.27e-10)	(1.53e-10)	(1.20e-10)	(1.35e-10)	(1.25e-10)	(1.47e-10)
<b>REM</b>	-2.12e-10 (1.88e-10)	8.14e-11 (4.11e-10)	-4.49e-10** (1.66e-10)	4.83e-10 (3.88e-10)	-2.12e-10 (1.85e-10)	8.14e-11 (3.95e-10)
<b>SCH</b>	87.532** (27.691)	9.004 (60.417)	91.072*** (25.744)	-71.667 (60.553)	87.532*** (27.337)	9.004 (58.107)
<b>PHR</b>	-	-0.27 (0.494)	-	0.728 (0.460)	-	-0.27 (0.475)
<b>ISF</b>	-0.83*** (0.257)	-0.450 (0.637)	-0.032 (0.471)	3.452*** (0.869)	-0.83*** (0.254)	-0.450 (0.613)
<b>1994</b>	-	-	-30.831*** (7.278)	-28.209 (11.218)	-	-
<b>1999</b>	-	-	-41.991*** (7.748)	-64.822*** (12.398)	-	-
<b>2004</b>	-	-	-39.625*** (8.521)	-52.668*** (11.476)	-	-
<b>2009</b>	-	-	-31.574*** (9.182)	-54.638*** (11.846)	-	-
<b>2014</b>	-	-	-30.049* (10.698)	-53.26*** (14.022)	-	-
<b>Constant</b>	-4.533 (20.398)	45.940 (67.912)	-27.519 (24.24)	-138.83 (66.757)	-	-
<b>R<sup>2</sup></b>	-	-	-	-	-	-
<b>N</b>	211	94	211	94	211	94

All standard errors are in parentheses

\* indicates significance at 10% level of significance

\*\* indicates significance at 5% level of significance

\*\*\* indicates significance at 1% level of significance

An important aspect of the research is the prominence of endogeneity bias. Endogeneity is an issue that can occur when it is difficult to determine a causal relationship between two variables that manifests due to three reasons. Firstly, there can be reverse causality in which

either variable can cause the other. If 'a' can cause 'b', and 'b' can cause 'a', then there is reverse causality. Secondly, selection bias can occur in which a relationship is not causal and could be due to other factors; for example, the relationship between household income and college attendance. Thirdly, there could be omitted variable bias which means that some unobservable and significant variable has not been included in the data or regression and needs to be added in order to have a complete understanding of the sample. These three characteristics of reverse causality, selection bias, and omitted variable bias lead to endogeneity which can be accounted for quantitatively by the use of an instrumental variable. When an instrumental variable is included in the regression it is related to the explanatory variables, but is uncorrelated with the errors. In this way, the instrumental variable accounts for the three aforementioned reasons of endogeneity and permits the regression results to be complete. There is major potential for endogeneity bias in my research, since the effectiveness of foreign aid could be hindered by multiple factors such as civil wars, world wars, economic crises, and other issues that my model doesn't predict for. Thus, it was critical that I create an instrumental variable to account for this endogeneity issue.

In the literature, Lopez (2015) utilizes pooled OLS regressions and fixed effect approaches. In these regressions, Lopez (2015) lagged all time variant explanatory variables by one year; she believed that the lagged independent variable provides an accurate decision making environment for donors. In the use of her instrumental variables, Lopez (2015) intended to remove any potential of selection bias from her sample. To account for potential endogeneity bias, de la Croix and Delavallade (2014) utilized the following instrumental variables: the 20-year lagged log of gross domestic product per capita, the five-year lagged log of trade openness (the sum of imports and exports as a percent of gross domestic product), the 20-year lagged

illiteracy rate, and the log of the number of years after independence. Charron (2011) utilized lagged variables of the different types of official development assistance with concentrations on colonial heritage, geography, and history of corruption. In order to account for the potential of multicollinearity, I created an instrumental variable that effectively lagged the foreign direct investment. Since Razaq (2014) utilized foreign direct investment in their regression but not as an instrumental variable, I perceived a gap in the literature in the analysis of foreign direct investment as a potential way to account for endogeneity bias in my data. Additionally, Lopez (2015), de la Croix and Delavallade (2014), and Charron (2011) utilized instrumental variables that did not extend to foreign direct investment. This furthered my curiosity to develop an instrumental lagged variable with foreign direct investment (seen in Models 5 and 6 in Table 2).

In Model 1, there are two statistically significant variables (Table 2); firstly, the independent variable concerning school enrollment. For every additional unit of children that are enrolled in primary and secondary school, there is an increase in the overall net official development assistance allocated by 87.53. This value is positive and statistically significance at the 5% significance level. Secondly, the independent variable of accessibility to improved sanitation facilities. For every additional unit of the population that has access to improved sanitation facilities, there is a resulting decrease in the net official development assistance allocated to a country by -0.83. This value is negative and has statistical significance at the 1% level of significance. Additionally, this is an unexpected sign; the negative differs from the positive sign that I have in my population regression function.

In Model 2, there are no statistically significant values. However, when all control variables are utilized (in this case, poverty headcount ratio is included), there are sign changes in the values depicted. For example, with the inclusion of poverty headcount ratio in the regression,

the positive sign for gross domestic product per capita growth in Model 1 transitions to a negative value in Model 2. This can be an indication that one of the rules of the Gauss-Markov Theorem has been broken, since there is unexpected sign change. Additionally, this highlights the possibility of omitted variable bias in Model 1, since the values that were significant have lost their significance with the addition of the poverty headcount ratio variable (Table 2).

In Model 3, the fixed effects regression now has a time series incorporated into the data. In this model, there are multiple statistically significant values. For every additional unit of remittances, there is a decrease in the overall net official development assistance allocated by a value of  $-4.49e-10$ . This value is unexpectedly negative and statistically significant at the 5% level of significance. For every additional unit of children that are enrolled in primary and secondary schools, there is a 91.072 increase in the net official development assistance allocated to a country. This value is statistically significant at the 1% level of significance. For the time series, the following years' values are negative and statistically significant at the 1% level: 1994, 1999, 2004, and 2009. While the negative sign remains constant for the year of 2014, the significance drops to be significant at the 10% level as opposed to the 1% level of significance in the previous years. This is a particularly intriguing trend in the data since the chronological values in the time series decrease the allocation of net official development assistance from 1994 to 1999, until the decrease starts to lessen in quantitative intensity from 1999 to 2014.

In Model 4, the fixed effects regression has a time series incorporated into the data, and includes all of the independent variables. As opposed to Model 3 where the exclusion of the poverty headcount ratio variable caused a statistical significance for the variables of remittances and school enrollment, in Model 4 those statistical significances are lost. Instead, the access to improved sanitation facilities for a percentage of the population is now statistically significant.

For every additional unit of the percentage of the population that can access improved sanitation facilities, there is an increase in the allocation of net official development assistance by a value of 3.452. This value is positive and statistically significant at the 1% level of significance. For the time series regression, there is an enlarging decrease in net official development assistance from 1994 to 1999. In 1994, for every additional unit there was a negative effect on the net official development assistance by a value of -28.209. While this value is neither positive nor statistically significant, the value in 1999 is: for every additional unit there was a decrease in net official development assistance by -64.822, which is statistically significant at the 1% level. Unlike Model 3, in Model 4 the corresponding value for 2004 increases to -52.668, but then decreases to -54.638. The final value in 2014 displays the fact that the corresponding value for the net official development assistance has continued to increase to -53.26, which is relatively decreasing from the 2009 value previously mentioned (Model 4). This trend in the time series is intriguing since it does not follow the same pattern seen in Model 3.

In Model 5, the instrumental variable of lagged foreign direct investment is utilized, and the poverty headcount ratio is excluded. In this model, there are only two statistically significant independent variables. Firstly, the enrollment of children in primary and secondary schools is positive and statistically significant at the 1% level. For every additional unit of children enrolled in school, there is an increase in the net official development assistance by a value of 87.532. Then, for every additional unit of the percentage of the population that has access to improved sanitation facilities, there is a decrease in the net official development assistance by -0.83, which is statistically significant at the 1% level of significance.

In Model 6, there are no statistically significant variables, although there is an instrumental variable and all independent variables are utilized. Since the results of the

regressions from Model 5 and Model 6 closely resemble the output values for Model 1 and Model 2, it is likely that my instrumental variable of lagged foreign direct investment is not only not statistically significant, but is not the optimal instrumental variable for this research (Table 2). This is a limitation of my paper that I will address in the upcoming discussion and conclusion section.

#### **IV. Discussion and Conclusion**

The results of my data findings, previously analyzed from Table 2, are mostly supported by the literature analysis. However, in order for my results to be supported by the literature, there needs to be an assumption made concerning my data. The assumption would state that corrupt governments would have poor government stability and bureaucratic quality, therefore providing a low standard of living for their country's population. Mamoon (2015) determined a negative relationship between the perceived corruption level of a country and the flow of net official development assistance. In addition, he found a positive relationship between the flow of aid in conjunction with government stability and bureaucratic quality (Mamoon, 2015). Lopez (2015) focused on the notion that moral hazard would occur for the donors of aid allocation which would affect the aid flow. With a perceived protection from the risk of allocating aid to a corrupt government, Lopez (2015) states that aid would increase to countries that are viewed as corrupt. Concerning the quality of institutions and the role of international organizations, de la Croix and Delavallade (2014) determine corruption to be an equilibrium phenomenon, meaning that the appearance of corruption in a country would negatively affect its potential to receive net official development assistance. Charron (2011) examined the effect of the anti-corruption movement (ACM) in the 1990s; the results showed that multilateral aid pre-ACM was not effectively

combatting corrupt practices, whereas post-ACM multilateral aid was effective. This can be seen in Model 3 and Model 4 in Table 2, where there is a negative trend in the net official development assistance that decreases post-ACM. Steckel's (1995) earlier research concerning standard of living as a concern of national income is primarily used in my paper to distinguish from Steckel's (2008) expanded definition of the standard of living. In his later paper, Steckel (2008) views standard of living as including life expectancy, morbidity, stature, and certain features of skeletal remains. Herbertsson and Martin (2005) found that aid effectiveness is not absolute, and believe that income is the sole way to divide countries that have succeeded or failed in their management of foreign aid. Razaq (2014) determined that in order to boost the standard of living, the metric of focus should be income per capita. He focused on per capita income, foreign direct investment, remittances, trade openness, and information and communication technology; Razaq (2014) found a positive relationship between the variables except for trade openness that was insignificant. However, since to my knowledge there are no papers that utilize the same combination of independent variables that I do, it is difficult to state that the literature fully supports my data results.

To restate, the study of net official development assistance is significant since the foreign direct investment involved can directly affect a country's economy, military, society, and foreign policy. There are prevalent themes within the literature that analyze the allocation of aid in correlation with the level of corruption within the recipient country. In this paper, my research question was: How does the inclusion of standard of living indicators affect the allocation of official development assistance? I hypothesized that the increase of variables concerning school enrollment, poverty headcount ratio, and access to sanitation facilities will have a positive statistical effect on the overall allocation of official development assistance.

Based on my findings, the inclusion of standard of living indicators can both positively and negatively affect the allocation of official development assistance. The three independent variables that I utilize to represent the standard of living in my paper are: school enrollment, poverty headcount ratio, and access to improved sanitation facilities. As seen in Table 2, across all six of my models, there are both positive and negative signs for all three of these independent variables. Therefore, since my results do not provide an absolute positive sign across all models in the three selected independent variables, I reject my null hypothesis that the increase of variables concerning school enrollment, poverty headcount ratio, and access to improved sanitation facilities will have a positive effect on the allocation of net official development assistance.

Regardless of the rejection of my null hypothesis, this paper makes a contribution to the existing literature since I do not solely consider standard of living as the gross domestic product of the country, nor as the per capita income. My expansion of the standard of living independent variables with the use of school enrollment, poverty headcount ratio, and accessibility to improved sanitation facilities is a combination of variables that does not exist in the current literature, to my knowledge. Additionally, the instrumental variable of lagged foreign direct investment had not been used in an OLS population regression function with the specific independent variables aforementioned. Finally, the 16 countries that I utilized in my data collection have not been used together in another paper, to my knowledge of the current literature.

The statistical significance of my data results has multiple policy implications. As seen in Table 2, there is only one instance in which a development indicator is statistically significant (specifically the variable of remittances in Model 3). Otherwise, the standard of living indicators

were most often statistically significant, specifically the variable of school enrollment of children in primary and secondary school as well as population accessibility to improved sanitation facilities. Therefore, if one of the sixteen countries that I researched is interested in increasing their net official development assistance, they would be focusing on policymaking that led to a positive increase in the school enrollment of children and accessibility to the improved sanitation facilities.

For the more corrupt countries, I chose to study: Bangladesh, Iran, Pakistan, Colombia, Morocco, Brazil, India, and South Africa. For the less corrupt countries, I chose to study: Costa Rica, Botswana, Slovenia, Bhutan, Chile, and Uruguay (Transparency International, 2016). In these countries, policymakers would need to increase the school enrollment of children in primary and secondary schools, and improve the population's access to improved sanitation facilities. These policies could focus on women's empowerment to encourage more girls to go to school in societies that are patriarchal, and increased efforts towards government subsidies for the construction of schools and accessibility to needed education materials. In order to develop policy that would improve accessibility to the improved sanitation facilities, there could be policy that improves public transportation, or an increase in the amount of paid sick leave from occupations. Additionally, in countries where cultural and religion stipulate that women would need a male relative to leave the house, such as Pakistan, there could be gendered sanitation facilities that would provide access to both genders.

While there were multiple limitations of my research, there are three major limitations that I would like to highlight. Firstly, due to the independent variables that I chose, it was difficult to find countries on either end of the corruption rating that had collected data on all of the variables that I was interested in collecting. Thus, the countries that I chose to study are a

spread in the middle range of the corruption scale instead of a selection of countries at either end of the scale. Secondly, due to time constraint I ended up choosing 8 countries that are considered more corrupt and 6 countries that are considered less corrupt. While researching this project I was unable to determine a way to separate the results of either grouping to compare their coefficients, significances, and values, but that would be something to improve upon in further research. Thirdly, in this project my instrumental variable of lagged foreign direct investment was statistically insignificant. Given more time, I would have liked to read more literature to develop multiple instrumental variables to attempt to determine the optimal fit that would account for endogeneity bias in my model. Additionally, if I had more time I would have enjoyed reading more literature concerning my specific independent variables in relation to standard of living, since they were not necessarily prevalent in the developmental economics literature concerning foreign aid.

For future research, I would implore economists to utilize similar standard of living variables that I focused on in my own research. The current literature concerning standard of living for countries is overwhelmingly dominated by the notion that the representative answer is either gross domestic product per capita or per capita income, and neither of those variables gives a comprehensive analysis of the larger need for countries to effectively utilize net official development assistance to improve their economies in ways that further improve the standard of living for their populations. Additionally, future research could focus on a particular region of countries that would be under the oversight of the same institutions or international organizations. That would effectively remove the bias that occurs in my sample of 16 countries that have been influenced by an insurmountable number of organizations and regional specific institutions. Future research should also attempt to locate data that is before the 1990s in order to

quantitatively represent the perceived efficiency or lack thereof of the anti-corruption movements in the 1990s. That was an aspect of my data collection that I could not overcome in my time series regressions in Table 2, Models 3 and 4.

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