THE EFFECTS OF FOREIGN AID ON GOVERNMENT CORRUPTION IN SUB-SAHARAN AFRICAN COUNTRIES

By

KWAK, Yunjeong

THESIS

Submitted to
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ABSTRACT

THE EFFECTS OF FOREIGN AID ON GOVERNMENT CORRUPTION IN SUB-SAHARAN AFRICAN COUNTRIES

By

Yunjeong Kwak

Aid effectiveness arises as a key issue in the international development field. Sub-Saharan Africa Countries, in particular, received a huge amount of aid money in the past decades. However, they still remain in a poverty trap due to a lack of good governance. In fact, Dambisa Moyo, a Zambian economist, argues that foreign aid is not effective in Sub-Saharan Africa, as it intensifies government corruption. To examine the effect of aid on government corruption, this paper investigates empirical analysis by using a fixed effect approach with panel data from 40 Sub Saharan countries from 2002 to 2013. This empirical test also shows the effect of not only Net ODA (% of GNI) but also bilateral and multilateral aid (% GNI) on government corruption. The results of the empirical tests show that increasing aid creates more serious corruption, for Net ODA and bilateral and multilateral aid. Even though foreign aid does not improve the quality of governance, it does not mean that we should stop the flow of aid. Rather, clearer and more effective aid monitoring and evaluation are needed on the part of the donors. Recipient governments should also develop mature civic awareness through improved training programs or E-government, which are useful ways to achieve transparency in government.

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1. INTRODUCTION

Corruption is not a new phenomenon in our society. It spreads from the public sector to the private sector in diverse ways. Although good governance and legal institutions are well established in most developed countries, corruption still remains and generates many social and economic problems. In many developing countries, corruption is one of the serious obstacles which impede social and economic development. It aggravates the gap between the rich and the poor, who still suffer from the poverty trap. Looking at the definition of corruption as, "the misuse or abuse of public office for private gain,"[1] it is obvious that the impact of public sector corruption on society raises more serious problems than it does in the private sector. Public sector corruption can directly impact policy and schemes which significantly impact economic growth and social development. Indeed, a lack of transparency, which is highly correlated to corruption, leads to political rent problems, which in turn bring about private corruption and market failure.

To deal with the aforementioned situation, and corruption in general, ultimately, many studies have proven the determinants of corruption in recent years. There are many various factors which have had a significant impact on corruption. The most consistent factor is the effect of income on corruption. In the Threisman paper, he demonstrated that in countries where income per capital is higher, government corruption is much lower.[2] It is also very common that political factors have a very close association with corruption. Montinola and Jackman argued that even in democratic countries, corruption in the public sector can be quite serious. They found that illiberal democratic countries are more corrupt than autocratic

[1] World Bank, 1997; UNDP, 1999

[2] Daniel Treisman, "*The Causes of Corruption: A Cross-national Study*." (Journal of Public Economics, vol. 76, no. 3 2000), 399-457.

countries.[3] Of course, a country which guarantees freedom of the press is less corrupt.[4] Furthermore, government size has a significant negative impact on corruption if the level of democracy is too low.[5] On the contrary, an increase in relative wages, which identifies the ratio of public sector wages to private sector wages (manufacturing or other industries), decreases corruption level.[6]

Recently, foreign aid issues have arisen as one of the important factors in corruption. As Dambisa Moyo, a Zambian economist, said, "Money from rich countries has trapped many African nations in a cycle of corruption, slower economic growth and poverty. Cutting off the flow would be far more beneficial."[7] In spite of the increasing amount of foreign aid, the economic and social status of these African nations is still unfavorable due to corrupt governments and a lack of sound institutional reform.

A few scholars, on the other hand, insist that foreign aid is effective in improving governance and reducing corruption. According to previous theoretical views, foreign aid improves governance by retaining revenue constraints, so that developing governments can implement legal systems against corruption. Moreover, aid could release governments from binding revenue constraints and enable them to concentrate on enforcing law and order or fighting corruption effectively. In addition, aid could provide developing countries much needed technical assistance in building effective institutions to improve governance. According to the Van Rijckeghem and Weder, foreign, aid can improve the quality of governance in terms of the capacity for building programs or increasing salaries. There are also many studies which demonstrate that foreign aid can lead to the implementation of good policies and legal institutions.

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[3] Gabriella R. Montinola, and Robert W. Jackman, *"Sources of Corruption: A Cross-Country Study."* (British Journal of Political Science, vol. 32, no.1, 2002), p.147-70.

[4] Aymo Brunettia and Beatrice Weder, *"A free press is bad news for corruption"*, (Journal of Public Economics, vol.87, no. 7–8, 2003), p.1801–1824

[5] Go Kotera, and al. *"Government Size, Democracy, and Corruption: An Empirical Investigation."* (Economic Modelling, vol. 29, no.6, 2012) p.2340-348.

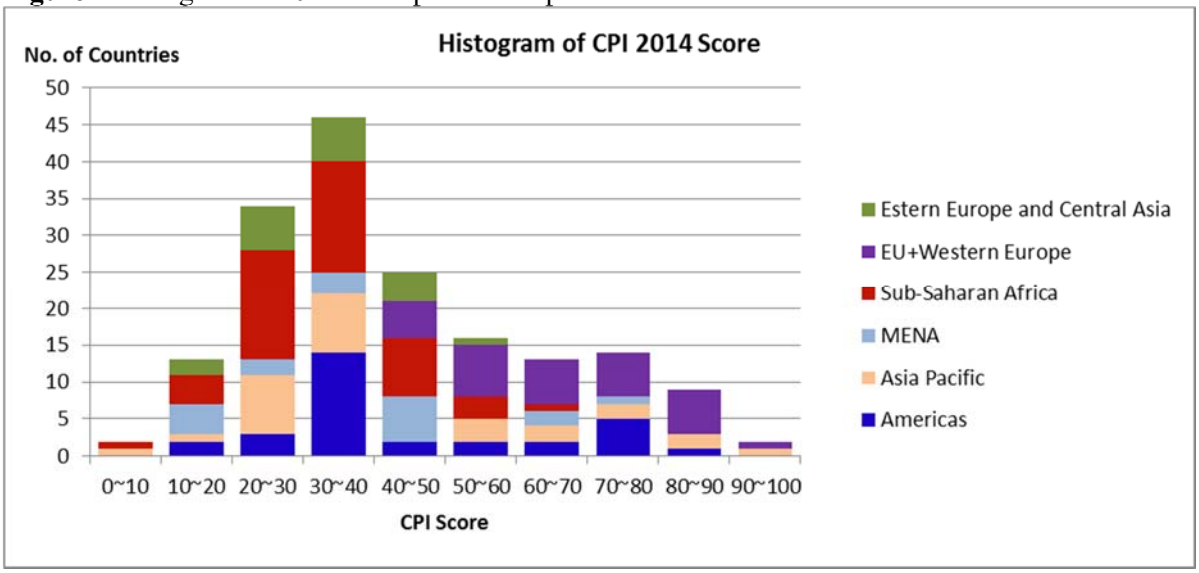
[6] Vansh Muttreja, *"Effects of Wages of Government Officials on Corruption in Developing Countries"* (Duke University Durham, 2012)

[7] Dambisa Moyo, *Dead Aid: Why Aid Is Not Working and How There Is a Better Way for Africa,*(Farrar, Straus and Giroux, 2009). 71

However, as Dambisa Moya said above, most research supports the assertion that the impact of foreign aid is that it significantly intensifies public sector corruption. Many developing countries receive foreign aid from developed countries for the purpose of economic and social development and poverty reduction. However, the general population in aid recipient countries remains in a poverty trap. According to Alesina and Dallar, around two-thirds of the foreign aid that flows to least developed countries, goes to government expenditures. Obviously foreign aid is used for government expenditure, since official foreign aid flows from the governments in developed countries to those in developing countries. However, two researchers also found that that the destination of pure money is in the pockets of public sector bureaucrats, rather than some form of distribution or benefit to the general public.[8]

According to the Corruption Perception Index for 2014 from Transparency International, most of the least developed countries, as defined by the United Nations, received a score of less than 35. Indeed, among these least developed countries, more than 60% of these countries are Sub-Saharan Africa countries. Among the 48 Sub-Saharan African (SSA) countries, 4 countries out of 10 scored less than 30. Indeed, most of SSA countries ranked in the bottom.[9]

Figure1. Histogram of 2014 Corruption Perception Index Score



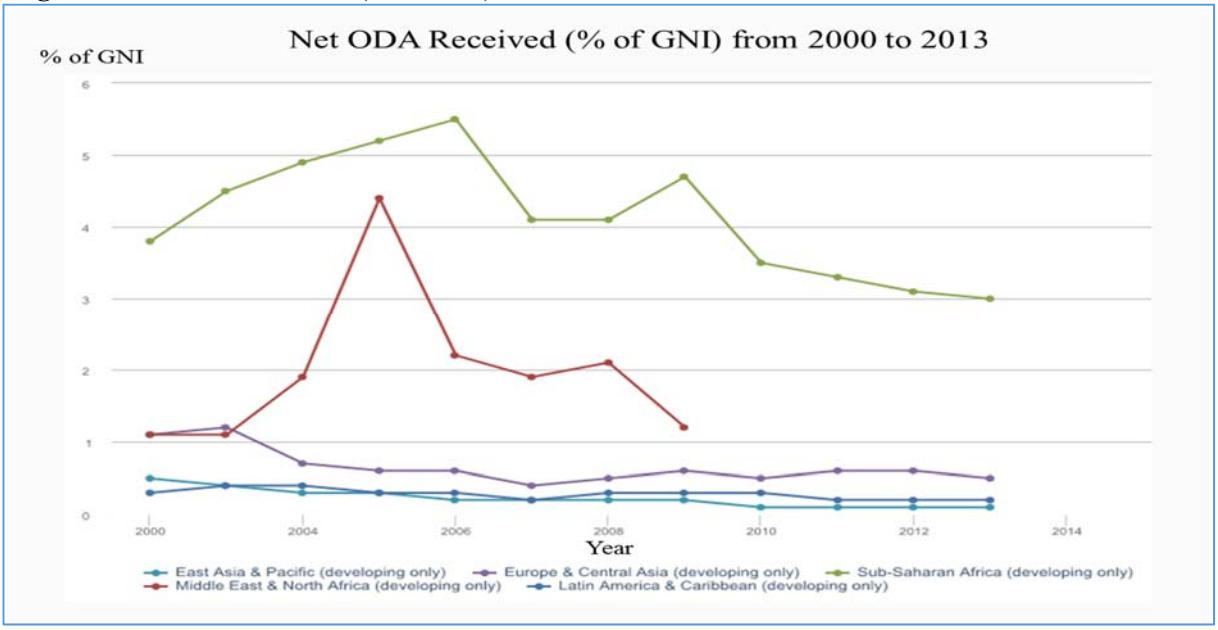
Source : International Transparency

[8] Alberto Alesina and Dollar David, *"Who gives foreign aid to whom and why?"* (Journal of Economic Growth, vol.5 no.1 2000), p.33-63.

[9] Transparency International, *"Corruption Perceptions Index 2014,"* (Berlin, 2014)

On the contrary, according to World Bank data, SSA Countries is the highest share of net ODA to GNI region among the developing regions in a decade. This issue is related to aid effectiveness, which has been a key and controversial issue in the development cooperation field in recent decades.

Figure2. Net ODA Received (% of GNI) from 2000 to 2013



Source : World Bank Data

Thus, the question of the impact of foreign aid on the quality of governance, more specifically corruption, is potentially of great importance for economic and social development and for the elimination of the poverty trap, in general. Why are Sub-Saharan countries still suffering from corruption even though they receive more aid than other developing regions? Does aid really cause corruption? If yes, which types of foreign aid directly affect public sector corruption, bilateral foreign aid, or multilateral aid? The purpose of this paper is to examine the significant effects of aid on government corruption. Furthermore, we will investigate whether bilateral aid or multilateral aid has any impact on government corruption.

2. Literature Review

There is no doubt about the importance of the nexus of foreign aid and corruption. However, there are few studies which tackle this subject. Most of the previous empirical and theoretical literature about the effects of aid has covered not only corruption, but also good governance or economic growth. Therefore, this review of literature will cover the impact of aid on good governance.

2.1. Aid is effective for good governance

Even though, there are some skeptical points of view, the effectiveness of aid on good governance is still theoretically respected in the international development field for several reasons.

According to Van Rijckeghem and Weder, foreign aid can improve the quality of governance by providing capacity building programs or increasing salaries.[10] Indeed, through improved training programs, such as public sector capacity building, bureaucrats can become aware of how corruption ruins economic development which will cause them to become concerned about government transparency. In addition, when salaries increase, governments can hire more capable bureaucrats, which means that bribe-offering can be reduced.

In addition, recently, many studies have proven that foreign aid is effective for good governance or may reduce corruption, depending on its type. Actually, there are diverse types of foreign aid: multilateral aid and bilateral aid by agent, and different foreign aid projects such as technical assistance. Although total ODA has negative effects on good governance, some studies reveal that multilateral and bilateral aid can improve the quality of government in recipient countries.

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[10] Caroline Van Rijckeghem and Beatrice Weder, *"Bureaucratic corruption and the rate of temptation: do wages in the civil service affect corruption, and by how much?"*, (Journal of Development Economics, vol.65, no.2, 2001), p. 307-331

As a noteworthy finding, Knack showed that foreign aid can improve government quality and reduce corruption depending on different types of foreign aid.[11] In his research, he demonstrated that various types of aid can improve the quality of institutions, with the exception of technical assistance. This type of aid causes the level of democracy in developing countries to dwindle.

Another researcher, Okada Samreth, has also shown that foreign aid has a positive effect on reducing government corruption.[12] This research proved that bilateral and multilateral aid can reduce government corruption with quantile regression methodology. To be specific, multilateral aid, such as the World Bank and IMF, has a greater effect in reducing government corruption than does bilateral aid. This is because, when international organizations provide foreign aid to recipient countries, they usually attach conditionality, such as improving governance or democracy level, reforming institutions and so on. However, it does not mean that bilateral aid is not effective in reducing government corruption. The test results showed that there are different impacts of aid on government corruption, depending on the donors. Their empirical results showed that foreign aid from Japan has a positive effect in the reduction of corruption in recipient countries, while aid from other DAC countries, the UK and France, does not.

Mohamed and al.'s empirical test with quantile regression also illustrated that total ODA can reduce corruption in Sub-Saharan African countries.[13] However, one interesting feature indicated is that the greater the corruption level of the country, the greater the effect of foreign aid in reducing corruption, whereas Tavares had a totally reverse result, with a greater effect showing for less corrupted countries.

Furthermore, Mohamed and al. proved that both multilateral aid and bilateral aid do not have significant effects on government corruption in Sub-Saharan African countries. Ear, Dunning, and Tavares

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[11] Stephen Knack, "*Aid dependence and the quality of governance: cross-country empirical tests*",(Southern Economic Journal, vol. 68 no. 2, 2001), p. 310-329

[12] Okada and Samreth, *"The effect of foreign aid on corruption: A quantile regression approach"*, (Economics Letters, vol. 115, 2012), p.240-243

[13] Masoud R. Mohamed and al. *"Effect of Foreign Aid on Corruption: Evidence from Sub-Saharan African Countries.*" (International Journal of Social Economics vol. 42, no. 1, 2015), p. 47-63

also identified that multilateral aid improves the quality of government or institutions due to conditionality.[14] He argues that governments in recipient countries should guarantee institutional reform or improvements in order to receive funds from Mutual banks such as the IMF or the African Development Bank. Lastly, the Goldsmith's paper indicates that an increase in aid flow leads to a political democracy and a liberal economy in African countries.[15]

2.2. Aid is not effective on good governance

Most researchers have a skeptical point of view regarding the effect of foreign aid on governance, echoing Dambisa Moyo's argument. This position has been quietly demonstrated since 1990. Many great scholars, such as Collier, Dollar, Kapar and Webb, have shown that even when aid is conditional, which means having conditions such as institutional reform or the implementation of political or economic schemes in recipient countries, it is not effective in terms of good governance and good policy. Mauro also reveals that excessive foreign aid increases corruption levels, which is directly related to low economic growth in his paper.[16]

According to Jakob Svensson, foreign aid leads to a fuel rent-seeking problem. One interesting feature in his paper, published in 2000, is to examine the negative effect of foreign aid on rent-seeking by using a game-theoretic rent-seeking model. He used a panel dataset of 66 recipient countries on an average of every five years from 1980 to 1995. Similar to other previous literature, corruption from ICRG was a dependent variable and total grant (not ODA) was the key explanatory variable. Infant mortality, democracy and trade as share of GDP were other control variables. Through his empirical results, grant types of aid accelerates rent-seeking because it works as an inducement for reform. What he found is that when excessive

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[14] Sophal Ear, "*Does Aid Dependence Worsen Governance?*", (International Public Management Journal, vol. 10, No.3, 2007), p.259

[15] A. Goldsmith, "*foreign aid and statehood in Africa*", (International Organization, vol.55, no.1, 2001), p.123-128

[16] Paolo Mauro, "*Corruption and Growth*", (The Quarterly Journal of Economics, vol.110, no. 3, 1995), p.681-712

amounts of aid inflow, governments reduce public provisions. Therefore, the level of rent-seeking increases and the impact of rent-seeking becomes directly a matter of corruption.

Another relative study of aid and governance in recipient countries is the aforementioned Knack's paper in 2001. Although he found that foreign aid can improve the quality of governance, his final analysis was that immoderate aid flow deteriorates governance in recipient countries.[17] As in the Busse and Gröning paper, he used ICRG data as governance quality, but with a cross-country analysis of 80 countries. As a control variable, he used ODA (% of GDP), income per capita, religious or legal tradition and colonial heritage. In his 2004 paper, he also investigated the effects of aid on democracy by using a multivariate analysis approach. He used a panel dataset with a large sample of recipient countries from the period of 1975 to 2000, using a democracy index from Freedom House, and net ODA as a percentage of GNI and government spending. In his paper, the multivariate results showed that foreign aid does not have significant effects on democracy level. Thus, he concluded that aid is not effective to increase in level of democracy.[18] Although this study focused only on democracy, there is no doubt that the level of democracy is highly associated with the quality of governance. A higher level of democracy means that all citizens can actively participate in politics and civic life, and from this citizens will require transparency from their government, in their role of supervisor. Therefore, despite different dependent variables, the results of this paper can represent one of the negative points of view for the effect of foreign aid on good governance.

In recent studies, Busse and Gröning proved that foreign aid has a negative effect on the quality of government by using an instrument variable on panel data of 106 recipient countries.[19] In their empirical model, quality of governance identified an International Country Risk Guide (ICRG) indicator which consists of three parts: as a corruption level; law and order; and quality of bureaucracy data. These three

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[17] Stephen Knack, "*Aid Dependence and the Quality of Governance: Cross-Country Empirical Tests*", (Southern Economic Journal, vol.68, no.2, 2001), p.329

[18] Stephen Knack, "*Does Foreign Aid Promote Democracy?*", (International Studies Quarterly, vol.48, no.2, 2004), p. 251-266

[19] Matthias Busse and Steffen Gröning, "*Does foreign aid improve governance?*", (Economics Letters, vol. 104, no.2, 2009) p. 78

variables have the same ascending order, so a higher value is less corrupt, has more law and order, and has a good quality of bureaucracy. The test results showed that aid was significantly (less than 1% significance level) negative on the quality of governance. In other words, foreign aid cannot improve the quality of governance.

There are two more recent studies which reveal negative arguments of aid effectiveness on governance. One uses a purely cross-sectional analysis with panel data from 32 African countries from 1982 to 1997. The paper reveals how aid decreases the quality of governance and increases corruption in the following way. When recipient countries receive foreign aid, this official money expands government revenue without any effort.[20] In other words, aid might cut back the role of the government, which is responsible for maintaining the rule of law, social security, and so on. In this way it makes place for corruption.

Another research paper points out that donor fragmentation leads to a low quality of bureaucracy in African countries. In this paper, authors used a purely cross-sectional analysis from 1982 to 2001 of 32 African countries. Their result showed that when there are many donors in one aid project or in a recipient country to "help" social and economic development, the quality of bureaucracy deceases. In other words, it creates space of corruption.[21]

As aforesaid, many studies from great scholars have already demonstrated the impact of foreign aid on governance. However, there are three missing points. First, the meaning of governance is obviously broad, and previous literature generated mixed results. Of course, some studies directly prove the relationship between aid and corruption. However, most of the data is outdated and sample countries for empirical tests were not specified. Each country has a different social and cultural situation. Therefore, at least, samples should be narrowed down by region, such as Sub-Saharan African countries, or East Asian countries and so

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[20] Brautigam, Deborah A., and Stephen Knack, "*Foreign Aid, Institutions, and Governance in Sub-Saharan Africa"*,(Economic Development and Cultural Change, vol.52, no.2, 2004), p.265

[21] Stephen Knack and Aminur Rahman, "*Donor Fragmentation and Bureaucratic Quality in Aid Recipients*", (Journal of Development Economics, vol.83, no. 1, 2007), p.176-197

on. Lastly, although there are a few studies regarding aid and corruption in Sub-Saharan Africa, the methodology is limited to only quantile regression (e.g. Okada and Samreth and Mohamed and al.). The key issue when using quantile regression is heterogeneity problems of unobservable variables.

To deal with those limitations, an empirical test of this paper will concretely compose: First, the main model will be the directly proven impact of foreign aid on government corruption; Second, the sample is limited to developing countries of Sub-Saharan African where foreign aid is the most ineffective by using panel data from 2002 to 2013; Third, a fixed effect approach will be used which can control for some unobserved covariates. Thus, this paper can contribute towards checking the effectiveness of recent aid flows on government corruption in Sub-Saharan African countries.

3. Data and Methodology

In the previous chapter, we reviewed past studies and shared their limitations. As aforementioned, the last paragraph of chapter 2, and chapter 3 more specifically provides data description, an introduction of the main empirical test model, and methodology to deal with the limitations of previous studies.

3.1. Empirical test Model and Data description

It is quite clear that we are investigating the impact of aid on government corruption in Sub-Saharan African countries. In this paper, the data of all the control variables and dependent variables cover the panel data of 40 Sub-Saharan African countries from 2002 to 2013. The countries and time period were chosen based on data availability.

Table 1. Forty Sub-Saharan African Countries

Angola	Equatorial Guinea	Madagascar	Senegal
Benin	Eritrea	Malawi	Seychelles
Botswana	Ethiopia	Mali	Sierra Leone
Burkina Faso	Gabon	Mauritania	South Africa
Burundi	The Gambia	Mauritius	Sudan
Cameroon	Ghana	Mozambique	Tanzania
Central African Republic	Guinea	Namibia	Togo
Chad	Kenya	Niger	Uganda
Congo (Brazzaville)	Lesotho	Nigeria	Zambia
Congo (Democratic Republic)	Liberia	Rwanda	Zimbabwe

Thus, the key variables should be corruption and foreign aid. In addition to those two important variables, there are also several key determinants of corruption which will be included our empirical model; government size, GDP per capita, democracy level, and rule of law. Many scholars, including Alsesina and Angeletos, argue that government size significantly affects its corruption level.[22] A large government size encourages political rent-seeking or illegal activities such as bribery, which is highly associated with corruption. GDP per capita, which is the standard measurement of the level of economic and social development, can also be one of the biggest causes of corruption, especially in developing countries.[23] Level of democracy is definitely one of the key determinants of corruption.[24] In general, countries where corruption level is low have a higher quality of democracy because democracy is related to political liberty and both make government more transparent and accountable. Furthermore, in countries with a high level of democracy, citizens monitor the government's behavior by political participation and competition. Lastly, rule of Law is a significant cause of corruption. A lot of research reveals that rule of Law improves the quality of institutions which have power against corruption.

Considering the variables above, the main empirical model is specified as follows:

[22] Go Kotera and al., 2012; Billger and Goel, 2009 Goel and nelson, 1998; Rose-Ackerman, 1978.

[23] Fréchette, 2006; Braun and Di tella, 2004.

[24] Chang and Golden, 2007; Lederman et al.,2005; Kunicova and Rose-Ackerman, 2005.

$$\text{Corruption}_{it} = \beta_0 + \text{Net ODA } (\%\ of\ GNI)_{it}\beta_1 + Democracy\ index_{it}\,\beta_2 + Government\ size_{it}\,\beta_3 + Rule\ of\ Law_{it}\,\beta_4 + Log\ GDP\ per\ cap_{it}\,\beta_5 + u_{it} \quad \ldots(1)$$

Where i and t stand for each SSA countries and time (from 2002 to 2013), β_0 is intercept, and u_{it} is error term. Corruption_{it} is corruption index of country i in year t. Net ODA is percentage of ODA as a share of GNI. The Democracy Index is constructed by taking the average of political rights and civil liberties provided by Freedom House. Government size is generally defined as government final consumption, a ratio of GDP or the ratio of population in the public sector to total population. In this paper, generate government expenditure as a ratio of GDP will be used. Rule of Law is one of the Worldwide Governance indicators from the World Bank. It reflects the level of perceptions which cause people to trust and comply with the rules of society. In particular it deals with property rights, jurisdiction and policing, as well as the probability of crime and violence. Lastly, Log GDP per cap is taken from the logarithm of GDP per capita in 2005 constant dollars.[25]

To examine the more specific impact of aid, we will analyze foreign aid by separating the character of agents: bilateral aid and multilateral aid. When we analyze the effects of foreign aid with only Net ODA, the results are obviously ambiguous. Net ODA is only concerned with et official aid flows. However, foreign aid consists of not only official aid but also private flow. Multilateral aid may not include private flow because, by definition, it is aid given by international and regional organizations. However, bilateral aid includes not only official flows but also private grants or Capital Market flows. According to Mohamed's paper, different types of foreign aid have different impacts on society and macroeconomics.[26] The following is the empirical model concerning the impact of bilateral and multilateral aid on corruption, which helps us to get a more accurate conclusion:

[25] For a more precise data description and its source refer to the appendix.

[26] Masoud R. Mohamed and al. *"Effect of Foreign Aid on Corruption: Evidence from Sub-Saharan African Countries."* (International Journal of Social Economics vol. 42, no. 1, 2015), p.50

$$\begin{aligned}\text{Corruption}_{it} = {} & \beta_0 + \text{Net bilateral aid } (\%\ of\ GNI)_{it}\beta_1 \\ & + \text{Net Multilateral ODA } (\%\ of\ GNI)_{it}\beta_2 \\ & + Democracy\ index_{it}\,\beta_3 + Government\ size_{it}\,\beta_4 \qquad \dots (2) \\ & + Rule\ of\ Law_{it}\,\beta_5 + Log\ GDP\ per\ cap_{it}\,\beta_6 + u_{it}\end{aligned}$$

Consistent with our main model, where i and t stand for each SSA country and time (from 2002 to 2013), β_0 is intercept, and u_{it} is error term. Corruption_{it} is corruption index of country i in year t. Net bilateral aid is percentage of received bilateral aid as a share of GNI. Similar to bilateral aid, Net multilateral ODA is the percentage of received multilateral aid as a share of GNI. Other control variables are the same as the main model.

Among several measurements of corruption, the most constantly used corruption index is the Corruption Perception Index (CPI) from Transparency International (TI). It measures the level of corruption in countries based on expert's perceptions. This index is quantitatively calculated using data from 14 sources originating from 12 independent institutions. All sources measure the overall extent of corruption (frequency and/or size of bribes) in the public and political sectors and all sources provide a ranking of countries.[27] The advantage of this measurement is a comprehensive set of primary resources, but the limitation of CPI is that it lacks a concrete measurement of corruption and it does not assess institutional framework or quality. The scale of CPI was from 0 to 10, where a low value means a more corrupt government and a high value means a less corrupt one. However, after 2010, the measurement and scale changed to 0 to 100, while the meaning of the values is the same. Because we cover the data from 2002 to 2013, for the data after 2010, the corruption level was rescaled to 0 to 10, thereby multiplying 0.1 by CPI.

Compared with another corruption index, such as the Control of Corruption from Worldwide Governance Indicators, the original source of CPI captures the perception of the corruption of public officers

[27] Transparency International, *Corruption Perception Index 2014: In detail*, http://www.transparency.org/cpi2014/in_detail, (accessed October 2015)

and politicians while Control of Corruption captures the level perception of corruption from public workers or bureaucrats concerning whether their government abuses public power for their grand or small private gains.

Another main variable, foreign aid consists of many types and diverse methods of aid programs. For example, Official Development Assistance which defines the "flows of official financing administered and offered to 152 countries"[28] is just one of the types of foreign aid from government to government, unlike private flow or private grants. According to World Bank data, there are several Net ODA indicators, such as Net ODA in current USD, and Net ODA per capita. In this paper, foreign aid is limited to ODA, more specifically, Net ODA (% of GNI) because this is the most accurate Net ODA of each country. The other two aforementioned variables can be an omitted because the amount of aid flow might be allocated depending on country size or high population rates. Multilateral aid and bilateral aid also stand for their aid flow as a ratio of GNI.

In terms of the political factors of corruption, democracy is a key variable. According to Boone, the effect of aid on economic growth depends highly on regime status.[29] In this paper, democracy index is covered by data from Freedom House, an American NGO. Data is available from 1972 onwards and is updated yearly. This variable is also in ascending order, so that the larger values indicate more democracy. The Democracy Index consists of a guarantee of political and civil rights in all countries worldwide. Therefore, we will use the average of both indicators and define it as Democracy Index.

Government size is total government spending as a share of GDP. We expect that higher values lead governments to be more corrupt.

GDP per capita is gross domestic product divided by midyear population.[30] Data are in constant

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[28] OECD, *OECD Glossary of statistical terms, Official Development Assistance (ODA)*, http://stats.oecd.org/glossary/detail.asp?ID=6043, (accessed October 2015)

[29] Peter Boone, *"Politics and the Effectiveness of Foreign Aid."*, (European Economic Review, vol.40, no.2, 1996) p.289-329

[30] World Bank, *World Bank data description, http://data.worldbank.org/indicator/NY.GDP.PCAP.KD,* (accessed October 2015)

2005 USD. As we did with general perception, we will apply the logarithm to GDP per capita.

Lastly, Rule of Law, which is one of the Worldwide Governance Indicators, is the only law that has the authority to influence society. The scale of Rule of Law is also from -2.5 to 2.5, which means that a higher value means better governance. This indicator was also rescaled from 0 to 5 to remove the negative sign, which is the same methodology as with the control of corruption.

3.2. Methodology

In the previous analysis of the impact of aid on good governance or corruption research, mainly quantile regression and OLS regression with Generalized Method of Moment, or with Instrumental Variable were used.[31] In a lot of the research, panel data is treated with two main types of methodology: random effects (RE) and fixed effects (FE).

To use RE, specific individual characteristics which may affect the predictor variable are needed. One necessary assumption in Random Effect is that there is no correlation between an entity's error term and predictor variables, which turns time-invariant variables into control variables. The side effect of Random-Effect is the existence of unobservable variables which leads to omitted variable bias in the model. According to Oscar Torres-Reyna, professor at Princeton, Random Effects allows us to generalize the estimation beyond the sample used in the model.[32]

A Fixed Effect model is usually used to estimate the impact of explanatory variables in time-variance. It controls unobservable characteristics of each entity, which may have an impact on predictor and outcome variables. This model has two assumptions, one is that each variable's own individual characteristics should be controlled, and the other is that time invariant characteristics should not be correlated with other characteristics. In other words, they are unique to the individual. The first assumption

[31] Okada and Samreth, 2012; Mohamed and al., 2015; Go Kotera and al., 2012

[32] Torres-Reyna Oscar, "*Panel Data Analysis Fixed and Random Effects using Stata*" (Princeton University, ver. 4.2, 2007), http://www.princeton.edu/~otorres/Panel101.pdf , (accessed October 2015)

is valid when the entity's error term and the predictor variables are correlated. FE offsets the effect of aforementioned time invariant characteristics, so the net effect of the predictors on the outcome variable is estimated. In terms of the second assumption, because each entity has different characteristics, the correlation between an entity's error term and the constant, which captures the individual characteristics, is strongly restricted. If they are correlated with each other, FE does not work as an estimator at all. However, there is a side effect of Fixed Effect. It cannot estimate time-invariant causes of dependent variables. According to Kohler, "Substantively, fixed-effects models are designed to study the causes of changes within an entity."[33] Therefore, a time-invariant characteristic cannot be the cause of change because it is constant for each entity .

To decide when to use fixed effect and random effect, the Hausman Test can provide the answer. The basic principal of this test is to prove whether there is correlation between the unique error term and the regressors. The null hypothesis of the Hausman Test is that there is no correlation between the unique error (U_{it}) and the regressor. If the null hypothesis is rejected, we use a fixed effect, unless, there is a random effect. With our panel data, P value is less than 0.05 in table 2, which means rejecting the null hypothesis. Therefore, it is rational to use FE in this model and for the panel data.

Table 2. Hausman test result

Test Summary	Chi-sq. 205.00		Prob. 0.0000	
	(b) fixed	(B) random	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
Net ODA(%of GNI)	-.005	-.004	-.001	.
Democracy Index	-.008	-.083	.074	.0289
Government Size	.003	.007	-.004	.
Rule of Law	-.075	.708	-.784	.102
Log GDP per cap.	1.274	.273	1.002	.154

b = consistent under H_0 and H_1

B = inconsistent under H_1, efficient under H_0

[33] Kohler et al. *"Data analysis using Stata"*, (Stata Press, 2nd edition, 2012), p.245

To check the heteroskedasticity, we checked the robustness in the model by making a cluster standard error to deal with.

However, there are multicolliniearity problems in the explanatory variable. Table 3 shows that the Variation Inflation Factor (VIF) is more than 10. Net ODA, bilateral and multilateral aid have an especially high VIF value. The reason is that foreign aid variables might be highly correlated to each other. However, in our model we used those variables separately. Therefore, multi-collinearity problems might be serious between bilateral and multilateral aid.

Table 3. Multi-Collinearity between explanatory variables

Variable	VIF	SQRT VIF	Tolerance	R-Squared
Net ODA (% of GNI)	190.98	13.82	0.005	0.995
Bilateral aid (% of GNI)	35.30	5.94	0.028	0.972
Multilateral aid (% of GNI)	83.69	9.15	0.012	0.988
Democracy	2.61	1.62	0.383	0.617
Government size	1.14	1.07	0.876	0.124
Rule of Law	3.14	1.77	0.319	0.681
Log GDP per capita.	1.72	1.31	0.58	0.420
Mean VIF	45.51			

4. Empirical analysis

In this chapter, empirical test results which apply the main model and sub model of the previous chapter will be presented. The results show how much foreign aid can effect government corruption. In addition, regression with a fixed effect of multilateral and bilateral aid illustrates which types of aid agents have a significant impact on government corruption.

4.1 Total aid, democracy and corruption

To examine the effect of aggregate aid on corruption, a fixed effect analysis was performed and the results are presented in Table 4 and Table 5. Based on the main model, by adding and subtracting variables, the results can allow us to analyze more accurately the effects of each variable on corruption. The difference between Table 4 and Table 5 is standardized coefficient. For Table 5, not only the dependent variable, CPI, but also the entire explanatory variable are standardized so that the mean is 0 and the standard deviation is 1. The purpose of this standardized regression coefficient is to illustrate the relative importance of the control variables and to compare the effect of the different changing variables. Therefore, it is interpreted differently compared to correlation coefficient.

In Table 4, Net ODA as a share of GNI has a significantly negative effect on the Corruption Perception Index in the entire column. Thus, it illustrates that any country which receives more ODA is more corrupt. To be specific, from column (1) to (4), correlation coefficient of Net ODA as a share of GNI is the same, while robust standard error is a little changed. Indeed, other explanatory variables: democracy, government size and rule of law, do not have significant effects on corruption. Thus, it can be interpreted that when a recipient country receives one percent more ODA as a share of GNI, the level of perception of government corruption is decreased by 0.008, which means a more corrupt government in Sub-Saharan African Countries.

Table 4. Net ODA(%of GNI) and corruption : Basic result(fixed effect)

Dependent Variable : CPI	(1) fixed effect	(2) fixed effect	(3) fixed effect	(4) fixed effect	(5) fixed effect
Net ODA (% of GNI)	-0.008*** (0.002)	-0.008*** (0.002)	-0.008*** (0.001)	-0.008*** (0.001)	-0.005* (0.002)
Democracy		-0.055 (0.049)	-0.028 (0.058)	-0.002 (0.068)	-0.008 (0.055)
Government size			0.006 (0.004)	0.006 (0.004)	0.003 (0.004)
Rule of Law				0.306 (0.363)	-0.075 (0.297)
Log GDP per capita					1.275*** (0.326)
Constant	3.040*** (0.018)	3.270*** (0.206)	3.063*** (0.257)	2.394** (0.804)	-5.326* (2.380)
N	425	425	412	412	412
R^2	0.030	0.033	0.034	0.044	0.177

Robust Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$
Dependent variable is Corruption Perception Index

Table 5. Net ODA (%of GNI) and corruption : Basic result (Fixed effect with beta coefficient)

Dependent Variable : CPI	(1) fixed effect	(2) fixed effect	(3) fixed effect	(4) fixed effect	(5) fixed effect
Net ODA (% of GNI)	-0.116*** (0.024)	-0.118*** (0.024)	-0.110*** (0.021)	-0.106*** (0.019)	-0.066* (0.031)
Democracy		-0.083 (0.074)	-0.042 (0.088)	-0.002 (0.104)	-0.013 (0.083)
Government size			0.051 (0.036)	0.050 (0.035)	0.024 (0.034)
Rule of Law				0.185 (0.220)	-0.046 (0.180)
Log GDP per capita					1.472*** (0.376)
Constant	-0.005*** (0.001)	-0.010* (0.005)	0.002 (0.006)	-0.004 (0.010)	-0.057** (0.019)
N	425	425	412	412	412
R^2	0.030	0.033	0.034	0.044	0.177

Standardized Coefficient
Robust Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$
Dependent variable is Corruption Perception Index

One interesting feature of this result is in column (5). When logarithm GDP per capita is involved in the control variables, the effects of Net ODA as a share of GNI is relatively decreased, while log GDP per capita has a significantly positive effect on reduction of government corruption. As we expected, when GDP per capita increases by one percent, Corruption Perception Index also increases. In other words, a country where GDP per capita is higher will have a less corrupt government.

Moreover, in Table 5, we can interpret the importance of each variable. Compare with Table 4, the standardized coefficient decreases when other explanatory variables are involved. This is because of the multicollinearity between explanatory variables. However, the significance can be seen in the entire column (1) to (5), as with Table 4. Furthermore, Log GDP per capita has more effect on government corruption than Net ODA as a share of GNI. This feature is also distinguished in Table 4.

4.2. Effects of Bilateral and Multilateral aid on corruption

To prove more specifically the impact of ODA on government corruption, Table 6 and Table 7 show the results of the effect of bilateral aid and multilateral aid, which are the two main agent types of ODA, on corruption. The most important features is that the coefficients of bilateral and multilateral aid as a share of GNI, have a negative and significant effect on Corruption Perception Index, which means the more aid, the more corrupt a government is. In columns (1) and (2) of Table 6, where only bilateral aid or multilateral aid controls corruption, both control variables have 1% significance on the Corruption Perception Index. As we expected, the sign is negative, so the effects of bilateral and multilateral aid are to fuel government corruption in Sub-Saharan African Countries. In other words, when one of the Sub-Saharan African countries receives aid that is one percent more as a share of GNI from a donor country, Corruption Perception Index decreases as much as 0.011. In addition, when it receives foreign aid from an international organization or a mutual development bank, such as the World Bank, its government corruption level decreases as much as 0.015. Compared with bilateral aid, multilateral aid makes governments more corrupt. However, it does not mean that the effect of multilateral aid is more serious than bilateral aid.

Table 6. Bilateral Aid, Multilateral Aid, and corruption : basic result (Fixed Effect)

	(1) fixed effect	(2) fixed effect	(3) fixed effect	(4) fixed effect	(5) fixed effect	(6) fixed effect	(7) est7	(8) est8	(9) fixed effect
Bilateral aid (% of GNI)	-0.011***		-0.008*	-0.008*	-0.007*	-0.006*	-0.005		-0.003
	(0.003)		(0.003)	(0.003)	(0.003)	(0.003)	(0.003)		(0.002)
Multilateral aid (% of NI)		-0.015***	-0.009**	-0.009**	-0.009*	-0.010*		-0.009	-0.007
		(0.003)	(0.003)	(0.003)	(0.003)	(0.004)		(0.005)	(0.004)
Democracy Index				-0.054	-0.027	-0.001	-0.004	-0.007	-0.008
				(0.050)	(0.060)	(0.069)	(0.054)	(0.055)	(0.055)
Government size					0.006	0.006	0.003	0.003	0.003
					(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Rule of Law						0.310	-0.084	-0.061	-0.069
						(0.364)	(0.296)	(0.301)	(0.299)
Log GDP per capita							1.287***	1.285***	1.274***
							(0.327)	(0.323)	(0.327)
_cons	3.033***	3.022***	3.048***	3.272***	3.070***	2.393**	-5.421*	-5.432*	-5.332*
	(0.021)	(0.013)	(0.021)	(0.210)	(0.266)	(0.798)	(2.388)	(2.358)	(2.384)
N	425	425	425	425	412	412	412	412	412
R^2	0.025	0.022	0.030	0.034	0.035	0.044	0.173	0.176	0.177

Robust Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Dependent variable is Corruption Perception Index

Table 7. Bilateral Aid, Multilateral Aid, and corruption : Basic result (Fixed effect with beta coefficient)

	(1) fixed effect	(2) fixed effect	(3) fixed effect	(4) fixed effect	(5) fixed effect	(6) fixed effect	(7) est8	(8) est9	(9) fixed effect
Bilateral aid (% of GNI)	-0.109*** (0.030)		-0.074* (0.033)	-0.074* (0.032)	-0.066* (0.027)	-0.057* (0.026)	-0.052 (0.034)		-0.025 (0.024)
Multilateral aid (% of NI)		-0.092*** (0.018)	-0.056** (0.020)	-0.058** (0.021)	-0.057* (0.021)	-0.061* (0.023)		-0.056 (0.031)	-0.044 (0.027)
Democracy Index				-0.081 (0.075)	-0.041 (0.090)	-0.002 (0.104)	-0.006 (0.082)	-0.011 (0.083)	-0.012 (0.083)
Government size					0.050 (0.036)	0.049 (0.035)	0.025 (0.034)	0.023 (0.034)	0.023 (0.034)
Rule of Law						0.188 (0.220)	-0.051 (0.179)	-0.037 (0.182)	-0.041 (0.181)
Log GDP per capita							1.486*** (0.377)	1.483*** (0.373)	1.471*** (0.377)
_cons	-0.006*** (0.002)	-0.003*** (0.001)	-0.006** (0.002)	-0.011* (0.005)	0.002 (0.006)	-0.004 (0.011)	-0.057** (0.019)	-0.056** (0.019)	-0.057** (0.019)
N	425	425	425	425	412	412	412	412	412
R^2	0.025	0.022	0.030	0.034	0.035	0.044	0.173	0.176	0.177

Standardized Coefficient

Robust Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Dependent variable is Corruption Perception Index

Even in the Table 6, column (3) where corruption is controlled only by bilateral and multilateral aid, when multilateral aid is changed by 1% as a ratio of GNI, the average change in the Corruption Perception Index is much bigger than with bilateral aid.

With all explanatory variables, the most significant estimation is log GDP per capita. As with our main model, (Net ODA model), when log GDP per capita is involved in control variables, neither bilateral aid not multilateral aid have any significance while Net ODA has 10% significance in table 4, column(5).

Through Table 7, we also can interpret how important each explanatory variable is and how much effect it has. One interesting feature in this table is that bilateral aid has more effect in intensifying government corruption than multilateral aid. Compared with Table 6, multilateral aid has relatively less effect on The Government Corruption Index, while change in government corruption is bigger than with bilateral aid. Furthermore, compared with table 5, column (5), when log GDP per capita is involved in the control variables, both bilateral and multilateral aid have no significant effect on the Corruption Perception Index. In other words, there is no evidence that increasing individual component of ODA (bilateral aid and multilateral aid) intensifies government corruption, while total net ODA has significantly negative effect on government corruption. However, when percentage of GDP per capita increases, it has a positive effect in reducing the perception of government corruption.

5. Conclusion

In this study, we use a fixed effect approach to reveal the impact of foreign aid on government corruption using the panel data of 40 Sub-Saharan African Countries from 2002 to 2013. Our results suggest that generally, foreign aid, especially ODA, fuels government corruption. Indeed with standardized coefficient, ODA has a significant negative effect on government corruption. Regarding bilateral and multilateral aid, with the results of the main model, both types of aid have a statistically significant negative effect on Corruption Perception Index. Therefore, both types of aid intensify government corruption. However, bilateral aid, in particular, has more effect on government corruption than multilateral aid, while multilateral aid leads to a larger change of government corruption.

Out of main control variables included in the analysis of the main model, only log GDP per capita significantly reduced government corruption. However, when log GDP per capita is included, all other control variables are insignificant except for Net ODA. In other words, although total ODA has a significantly negative impact

on government corruption, it is not sufficient evidence to prove that foreign aid intensifies government corruption, due to the fact that bilateral and multilateral aid have no significance on government corruption within all of the control variables.

Although the results show that foreign aid might accelerate government corruption, it does not mean that donor countries should stop providing aid to recipient countries. From these investigations, it is possible to suggest some policy implications to improve aid effectiveness on the reduction of government corruption in the region of SSA.

First, the monitoring and evaluation systems of foreign aid need to be enhanced. From a donor's point of view, an aid allocation criterion is directly related to aid effectiveness. To increase aid effectiveness, donors may carefully evaluate their aid projects. Developing monitoring and evaluating aid projects is an ongoing process. However, even OECD/DAC countries do not implement their own monitoring and evaluation criteria, nor do dependent institutions which can be responsible for a development project. Fortunately, in recent years, "Impact Evaluation" methodology was developed by international organizations: the World Bank, Asian Development Bank, OECD etc. According to OECD, the definition of impact *evaluation is "an assessment of how the intervention being evaluated affects outcomes, whether these effects are intended or unintended. The proper analysis of impact requires a counterfactual analysis of what those outcomes would have been in the absence of the intervention."*[34]

The purpose of this impact evaluation is to provide an analysis of the causes of the outcomes and failures by estimating the impact of aid projects. It already has a well-developed toolkit and quantitative methodology. The key feature of this evaluation is a Randomized Trail. Two groups were divided: the control group and the treatment group by random selection, then the difference between the two groups were analyzed after implementing an aid project. Of course there are some disadvantages. For example, it only focuses on observable variables, ignoring an evaluation of unobservable variables, such as social capital. Moreover, as a limitation of an estimable variable, a project by mutual partnership or by theory of change cannot be evaluated. However, this evaluation definitely allows us to do an objective evaluation in the development corruption field.

Second, both donor and recipient countries develop diverse and effective foreign aid projects. After the Paris declaration in 2005, aid effectiveness arose as a key issue. In order to provide foreign aid more effectively, diverse development cooperation was developed. One good example is South-South Cooperation (SSC). Actually SSC existed in the 1960's however, it developed further after 2000. The definition of SSC is a *"broad framework for collaboration*

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[34] OECD, *Evaluation of development programmes-Outline of principles of Impact Evaluation,* http://www.oecd.org/dac/evaluation/dcdndep/37671602.pdf, (accessed October 2015)

among countries of the South in the political, economic, social, cultural, environmental and technical domains."[35] The basic elements of SSC are organizing and managing development projects by developing countries themselves. Most aid projects provide from North to South. Thus, donor countries cannot fully understand the social and economic situations of recipient countries. However, in SSC, most recipient countries have geographical proximity, thereby increasing cultural similarity with each other. Therefore, developing countries can understand which social and economic factors are needed in the least developed countries. Indeed, SSC is a horizontal relationship and it uses the experience and capacity that already exists in the development of new capacities in developing countries.[36] Therefore, these aid programs are relatively more effective than North-South Cooperation. Related to this issue, Triangle Cooperation has recently been developed. In brief, it is North-South-South Cooperation, so that developed countries provide some expert or technical assistance, and the other southern countries manage the development project. As governments of recipient countries are actively involved in their development project, foreign aid cannot be abused, and government corruption can be reduced.

Lastly, a Knowledge Sharing Project needs to be developed. This is also a new program in the international cooperation field. Providing infrastructure or technical assistance is just one aspect of an aid project. Indeed, some recipient countries may have fancy infrastructure, but due to lack of knowledge, many of them do not use this infrastructure. Indeed, the rule of knowledge is emphasized in the development process. Therefore, voluntary incorporation of knowledge sharing in development cooperation efforts becomes important as a way of enhancing developmental effectiveness. In Korea, Knowledge Sharing Program (KSP) was implemented in 2004. In the same vein, some international organizations carry out similar development programs: 'Knowledge Bank' and 'Solution Bank' from the World Bank; 'Knowledge Broker of the region through Knowledge Management' from the Asian Development Bank; 'Knowledge Based Economy' and 'Knowledge Sharing Alliance' from OECD. In brief, Korean KSP is designed to assist development partnership countries in key policy areas by sharing Korea's development knowledge and experience.[37] The target of this program is public officers and governments of partner countries. Through this program they can learn how sound institutions and good policy are important to develop. KSP can improve the quality of governance as it implements good policy. Through the KSP program, Korea has already

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[35] United Nations Office for South-South Cooperation(UNOSSC), *What Is South-South Cooperation?,* http://ssc.undp.org/content/ssc/about/what_is_ssc.html, (accessed October 2015)

[36] United Nations Office for South-South Cooperation(UNOSSC), *What Is South-South Cooperation?,* http://ssc.undp.org/content/ssc/about/what_is_ssc.html, (accessed October 2015)

[37] Knowledge Sharing Program, *KSP is,* http://www.ksp.go.kr/ksp/ksp.jsp (accessed October 2015)

provided more than 580 policy consultations for cumulatively 140 countries up to 2013. Of course, some issues remain. The duration of the program is no longer than 3 years (most are a year). Therefore, this policy consultation program should link with follow-up practical development projects which can lead towards making visible development outcomes.

The role of the government is absolutely important in performing social and economic development in developing countries. However, when it is corrupt, the efforts of donors and even recipients are wasted. To break out of this vicious cycle, donor countries need to provide transparent aid and respect the recipient countries' situations. It is equally important that both the recipient government and its public are aware of the economic and social situations of their nations to increase the effectiveness of the aid. One of the most important notions here is that in order to eliminate the impediments to African development, maintaining ineffective foreign aid is certainly not a better route at all.

APPENDICES

APPENDIX A

A. Data Description and its sources

Variables	Description	Sources
Corruption Perception Index	TI defines corruption as the abuse of entrusted power for private gain, including corrupt practices in both the public and private sectors. It is Corruption Perceptions Index (CPI) ranks countries according to the perception of corruption in the public sector. It is rescaled from 0 to 10 so that a smaller value indicates more corruption.	Transparency International
Bilateral Aid (% of GNI)	The Net disbursements of official development assistance (ODA) from the members of the Development Assistance Committee as a share of GNI	World Bank Data
Multilateral Aid (% of GNI)	ODA from international organizations such as the World Bank and regional development banks divided by GNI.	OECD/DAC Statistics
Democracy Index	The Freedom House provides two indices of political rights and civil liberties. Democracy is defined as the average of these two variables. This variable is rescaled so that a larger value indicates a greater level of democracy.	Freedom House
Government size	General government final consumption expenditures as a share of GDP.	World Bank Data
Rule of Law	Capturing 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.	Worldwide Governance Indicators
Log GDP per capita	Represents the change in per capital income of the people with Logarithm. It is measured as the country's level of per capita GDP at time t	World Bank Data

APPENDIX B

B. Summary Statistics

Variable	Observation	Mean	Standard Deviation.	Min	Max
Corruption Perception Index	425	2.956	1.027	1.1	6.5
Net ODA(% of GNI)	480	10.933	14.523	-.25	181.19
Bilateral Aid (% of GNI)	480	7.486	10.092	-.308	129.455
Multilateral Aid (% of NGI)	480	4.727	6.507	-.038	80.549
Democracy Index	480	4.245	1.553	1	7
Government Size	467	15.347	8.234	2.047	86.906
Rule of Law	480	1.807	.6219	.645	3.557
Log GDP per capita	480	6.589	1.185	4.904	9.645

APPENDIX C

C. Correlation Matrix

	Corruption Perception Index	Net ODA (% of GNI)	Bilateral Aid (% of GNI)	Multilateral Aid (% of NGI)	Democracy Index	Government Size	Rule of Law	Log GDP per capita
Corruption Perception Index	1.000							
Net ODA (% of GNI)	-0.142 (0.003)	1.000						
Bilateral Aid (% of GNI)	-0.150 (0.002)	0.966 (0.000)	1.000					
Multilateral Aid (% of NGI)	-0.1289 (0.008)	0.916 (0.000)	0.792 (0.000)	1.000				
Democracy Index	-0.668 (0.000)	0.028 (0.546)	0.011 (0.814)	0.040 (0.381)	1.000			
Government Size	0.351 (0.000)	0.017 (0.708)	0.039 (0.405)	0.001 (0.990)	-0.264 (0.000)	1.000		
Rule of Law	0.833 (0.000)	-0.155 (0.001)	-0.111 (0.015)	-0.183 (0.000)	-0.775 (0.000)	0.334 (0.000)	1.000	
Log GDP per capita	0.498 (0.000)	-0.477 (0.000)	-0.485 (0.000)	-0.459 (0.000)	-0.245 (0.000)	0.162 (0.000)	0.424 (0.000)	1.000

Significance level in parentheses

APPENDIX D

D. Figures

Figure 1. Net ODA (% of GNI) and Corruption Perception Index

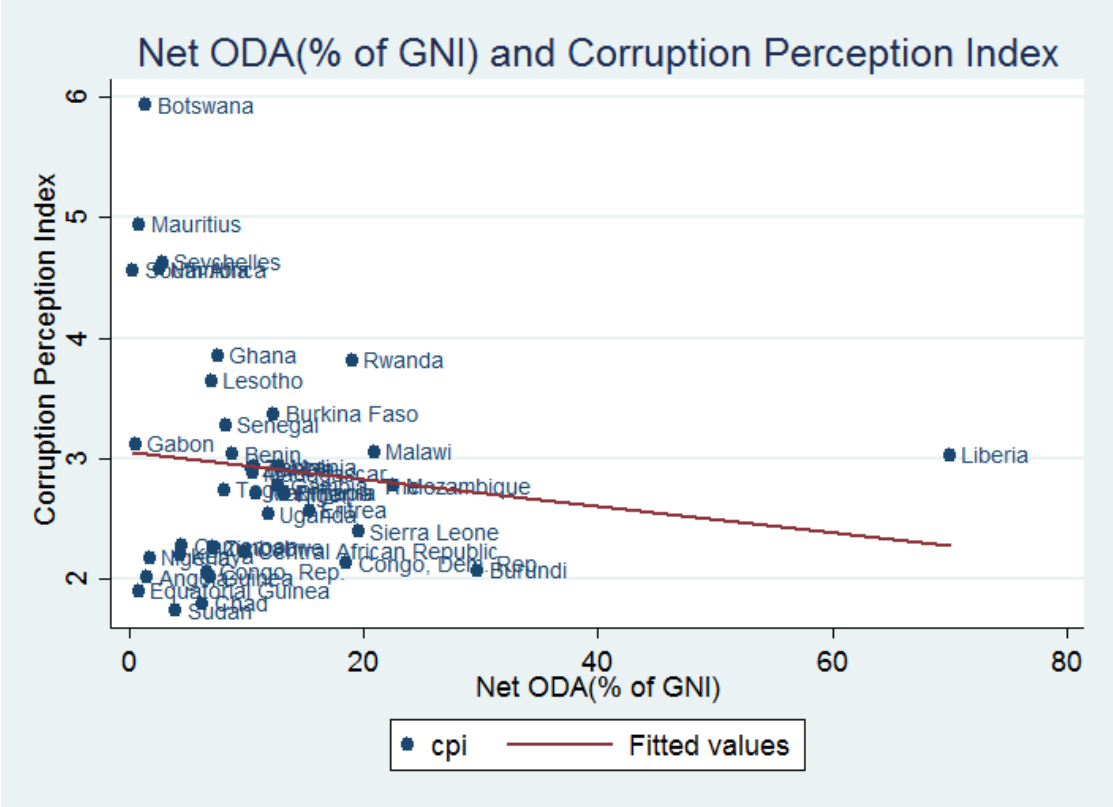


Figure 2. Bilateral Aid (% of GNI) and Corruption Perception Index

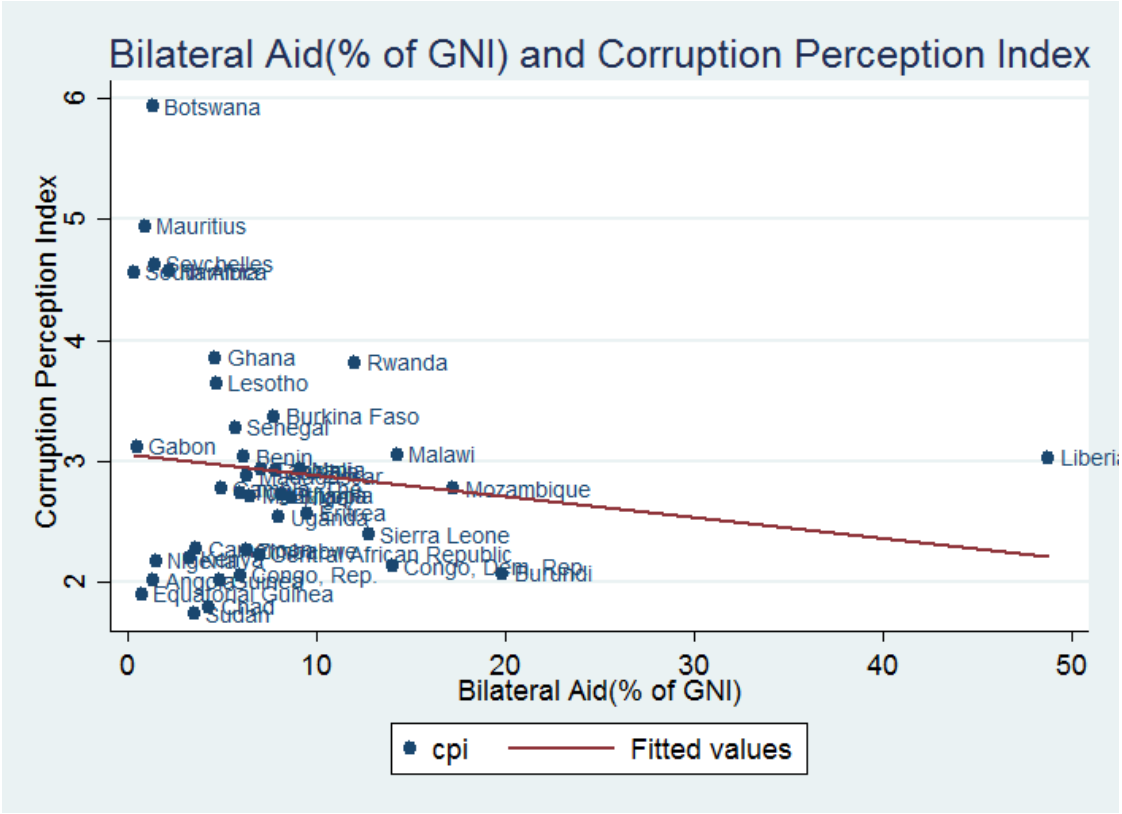
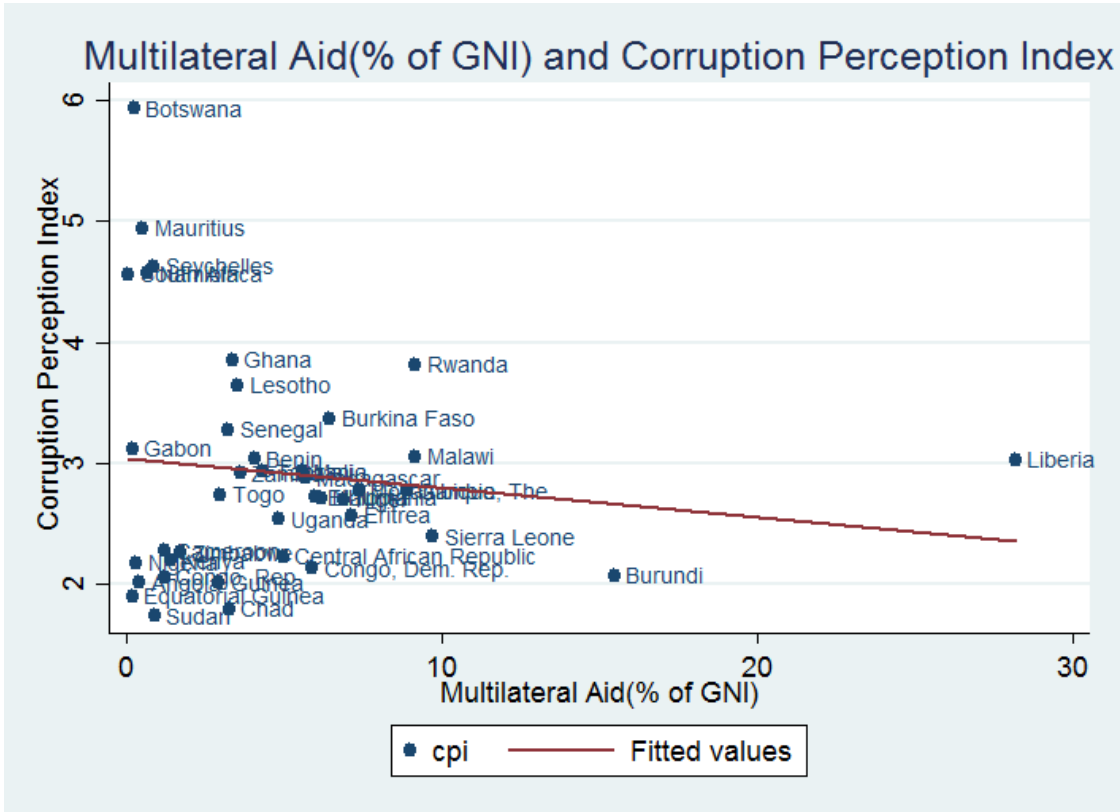


Figure 3. Multilateral Aid (% of GNI) and Corruption Perception Index



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