The Impact of Official Development Assistance on Government Effectiveness: The Mediating Effect of Corruption*

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Abstract: The impact of ODA on governance is still a contentious issue of debate. A few number of East Asian countries, such as Korea and Singapore, have achieved rapid economic and social development by government-led development strategy. This study focuses on the role of government to achieve developmental goals, and explores the relationship between aid dependence on government expense and government effectiveness from the perspective of government competitiveness and the mediating effect of corruption as well. The analysis draws upon a data set of 82 developing countries over the period 2004-2013. The findings of the study illustrates that dependence on ODA in government expenditure reduces government effectiveness in developing countries. In addition, ODA funds from donors have an adverse effect on the control of corruption, and it, in the end, impedes government effectiveness. To increase aid effectiveness in promoting growth and development, governments of developing countries need to improve their government competitiveness.

Keywords: government effectiveness, corruption, ODA, government-led development, government competitiveness

INTRODUCTION

Poverty eradication is still a big global conundrum, though donor countries and agencies have provided foreign aids for more than 60 years. On the other hand, a few

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number of East Asian countries, such as Korea, Singapore and Taiwan, have made extraordinary rates of economic and social growth, and are considered as exemplars for developing countries. Unlike other donors, Korea has already experienced economic and social development initiated by government, which attract many scholars attention. It is believed that Korean Government played the key role in the process of the development. Government intervention to allocate credit and accelerate the process of industrial development (Fukuyama, 2004). It is universally admitted that economic development in these East Asian countries, defined as growth, productivity, and competitiveness, was guided by instruments formulated by elite economic bureaucracy and a pilot agency (Öniş, 1991). In other words, government's competitiveness is a new concept to evaluate the possibility of economic success as far as developing countries are concerned.

Resource, especially financial results, is scarce in most developing countries. On the other hand, many developed countries tend to increase official development assistance partly thanks to the millennium goals' set by the United Nations. However, donors are skeptical of the developing countries capability to deal with their aids.

Government effectiveness is associated with countries' economic and social growth (Garcia-Sanchez et al, 2013) which are the main goals of ODA. When the work performance of developing government is ineffective, resulting in the wrong timing or inappropriate ordering of reforms, it is likely to beget negative consequences in developing countries (Dalgaard et al., 2004; Im & Park, 2010). Unless governments buttress the rule of law, sound economic policy, appropriate public investments, and a public administration (Binagwaho & Sachs, 2005), economic development remains at a stalemate. Corruption in the developing governments is viewed as one of the most probable explanations for the status of many developing countries in the present day. Providing them with freely usable resource, foreign aid props up corrupt government. The vicious cycle of aid engenders economic failure in aid-dependent countries (Moyo, 2009).

Numerous researches have been conducted regarding the relationship between ODA and economic growth. From market-oriented perspective, these researches examined whether ODA makes a positive contribution to economic growth or a negative role by causing aid dependency and the Dutch disease[1] in developing countries. Some have focused on the impact of ODA on governance. However, the concept of governance is ambiguous and varies in different fields of study.

1. The term 'Dutch disease' is coined by the Economist in 1977 to describe the decline of the manufacturing sector in the Netherlands after the discovery of the large natural gas field in 1959 (en.wikipedia.org).

The main purpose of this study is to shed light on the relationship between dependence on ODA and government effectiveness from the perspective of government competitiveness. Given that rapid economic growth of East Asian countries was led by their governments, this study focuses on the role of government. Especially, the level of control in corruption might to be determinant on the government effectiveness. In addition, with the result of doubt about foreign assistance and aid-fatigue, aid effectiveness has been underscored since the Paris Declaration. Hence, aid effectiveness focusing on government effectiveness will be explored in this study.

THEORETICAL BACKGROUND AND LITERATURE REVIEW

Government Competitiveness

According to Ho and Im (2012), the concept of Government Competitiveness (GC) can be defined as "the power of government to, in light of various constraints, take resources from in and outside of the country and improve social, economic and cultural conditions of the nation in order to sustainably enhance citizens' quality of life and bring the future to more desirable ways." The concept of government competitiveness adopts three theoretical framework: Easton's system theory, Fukuyama's state function theory, and Maslow's hierarchical needs theory.

Easton's system theory classifies the working process of the government into four stages: input, throughput, output, and outcome (Easton, 1965). Using inputs from social, technological, and natural environment, government performs throughputs. As a result, government produces outputs and outcomes. Again, these outcomes provide feedbacks to inputs. To put the four stages into ODA process, influx of ODA is input. Outputs may be road constructions, improvements of educational opportunities for their children, and so on. The ultimate outcome of the ODA should be economic and social development of recipients. In the process, central and local governments work to improve throughputs, implementing development-oriented policies and managing resources.

Fukuyama (2004) suggests that building a strong state is a prerequisite for economic growth. The World Bank provided a list of functions of the state in the world development report in 1997, and divided the nation's functions into three stages; minimal, intermediate, and activist functions. Fukuyama arrayed them along the x-axis depending on what each government seeks to accomplish (Fukuyama 2004). The concept of government competitiveness sees the functions as the policy sectors government should pursuit at different points along the axis. To be specific, the most competitive

government can cover all of the functions, while the least competitive government manages merely minimal functions in spite of policy demand for social insurance or wealth redistribution.

According to Maslow (1970), a person who is short of food, safety, love, self-esteem, and self-actualization needs would strongly prefer food to anything else (Maslow, 1970). In this respect, in case of the least developed countries (LDC), satisfying basic needs, physiological and safety needs on food, drinking water, health, and shelter will be the necessary policy. On the other hand, self-fulfillment needs for citizens should be taken into considerations as a country develops. At that point, market functions play an important role, but still the government should seek to accomplish minimal state functions such as defense, law, and common welfare. This is the reason that governments exist.

Based on the theories above, the rankings of Government Competitiveness (GC) index were announced in 2013 and 2014. The rankings are determined across 34 OECD member countries and non-OECD countries. The GC index encompasses 10 policy sectors for evaluating OECD member countries which are intended to meet citizen's needs (Im, 2015). Meanwhile, the rankings for non-OECD countries are measured by inputs and outputs of six policy sectors; economy, education, health & welfare, agriculture & food, energy & environment, and information & communication technologies. Since its own market and civil society has less developed than developed OECD member countries, governments of developing countries must play a bigger role than markets or civil society (Im, 2015).

Cure or Curse? Official Development Assistance (ODA)

ODA refers to flows to countries and territories on the DAC list of ODA recipients and to multilateral development institutions which are provided by states and local governments, or by their executive agencies. Each transaction is administered in mainly to promote economic development and welfare of developing countries and is concessional in character and conveys a grant element of at least 25 per cent (OECD, 2001). Donors provide ODA to developing countries for diplomatic, developmental, economic and humanitarian purposes.

Many literatures have reviewed the economic effect of foreign aid both theoretically and empirically. There have been some empirical studies which proved a positive impact of aids on the growth (Burnside and Dollar 2004; Tsikata 1998; Lensink & Morrissey, 2000). Asteriou (2009) investigated the relationship between foreign aid and economic growth through empirical studies on South Asian countries. The research provided robust evidence of a positive GDP growth effect of foreign aid.

Jung and Lee (2011)'s empirical research found that GDP has an impact on ODA, and vice versa. The study also implies that the impact of ODA is dependent on regional dimension.

Though a variety of studies suggest that the aid is effective for developing countries to attain developmental goals, some influential researches cast a doubt on a positive link between foreign aid and growth (Moyo, 2009; Boone, 1996; Kekic, 2008). These studies support the aid dependency theory that the developing countries are becoming so reliant on foreign aid that corruption in government is getting worse. The more they receive ODA from donors, the more public officials get addicted to ODA.

Brautigam and Knack (2004) revealed the relationship that the bigger amount of financial aid a country received, the weaker its governance system become, based on empirical study conducted with 82 beneficiary countries and 32 Sahara South countries. The huge donations going beyond a government's managerial capacity bring about fragmentation and the high transaction cost in the society, which result in moral hazard and conflict among rent seekers.

In the long run, they do not make aggressive efforts to the economic and social growth. According to the study on the effect of aid to the Balkan countries conducted by Kekic (2008), a Balkan version of the Marshall Plan did not materialize because stability, democracy and economic prosperity cannot be applied to the Balkan. Growth regressions showed that the impact on outputs of aid were weak for the transition countries in the Balkans. Svensson (2000) applied the game-theoretic rent-seeking model to answer to the question, "why has the macroeconomic impact of foreign aid been so poor?" The findings demonstrated that inflows of foreign aids do not contribute to improving general welfare in the developing countries, providing less reason to increase government income. Furthermore, Rajan and Subramanian (2006) pointed out that there is an adverse effect of aid on the competitiveness of the traded goods sector. They asserted that aid suppresses the growth rate of the manufacturing sector.

Government Effectiveness

Concerning the effectiveness of ODA, the role of government is critical because government officials the major actors in spending and managing the aides. The private sector is either premature or unreliable in most developing countries. Most of the entrepreneurs all short-term oriented in terms of personal profit making as opposed to a long-term national development strategy.

Even though top managers' leadership is important, government is an organisation comprising many public officials. Therefore effective performance of an organization

and employees within the organization is very important issue in order to achieve goals and objectives (Bayasgalan, 2015). Organizational effectiveness evaluates the degree to which goals in the organization are achieved (Daft, 2001). Quinn and Rohrbaugh (1983) suggests the competing values approach to organizational effectiveness with four models of effectiveness values; human relations model, internal process model, open systems model, and rational goal model. In this study, a recipient government can be seen as the rational goal model. This is because the rational goal model emphasizes structural control and external focus. In the rational goal model, organizations in government are considered a principal agent which sets their own goal to make productive and efficient outcome. It is quite similar to the view of this study, because this study places a great deal of emphasis on the functions and roles of a recipient government to attain development.

Lee and Whitford (2009) assessed government effectiveness to explore what government is, and how to compare the perceived government competitiveness. Burnside and Dollar (2004) concluded that there is far more evidence that aid simulates growth conditional on institutions, than for the competing hypothesis that aid has the same positive effect regardless of institutional environments. The empirical research conducted by Hansen and Tarp (2001) has examined that aids in all likelihood increase the growth rate, and this result is not conditional on good policy. They included investment and human capital in the regression model, but there were no positive effects.

In light of aid effectiveness, studies on the relationship between ODA and recipient governments, or governance, were conducted. The studies have attempted to analyze the impact of ODA on government. Regarding this issue, many empirical studies shed lights on the detrimental effect on ODA, suggesting that ODA weakens the state bureaucracies of recipient governments. Knack (2001) examined the issue of aid dependence weakening the quality of governance. The relationship was explored by indexes of bureaucratic quality, corruption, and the rule of law at the International Country Risk Guide (ICRG) indicators. Remmer (2004)'s findings with respect to government expenditures and aid showed that aid dependence fosters the governance size in middle and lower income countries. On the other hand, Rajan and Subramanian (2007) found that there is a positive correlation between foreign aids and growth among governance dependent industries. That is, the countries' economy which does not rely on foreign capitals to grow faster.

Corruption

Corruption refers to taking advantages of public office for private gains, where an official dealing with a task by the public engages in some sort of malfeasance for

private unfair profits. Corruption is difficult to monitor for the principal (Bardhan, 1997). According to the principal-agency theory, public officials are agents who work for people and the country. The public choice perspective suggests that public officials pursuit their own interests rather than public interests (Buchanan & Tullock, 1962). Especially, in many developing countries, low salary for public officials fuels corruption. Even if a public official accepts a bribe, it is not compensation for doing the job (Thompson, 2000).

Corruption has been a frequently remarked problem in foreign aid. Behaviors of political or administrative elites have critical influences on government initiated programs in developing countries. Moreover, corruption reduces the effectiveness of industrial policies and encourages business to operate in the unofficial sector in violation of tax and regulatory laws (Rose-Ackerman, 1999). When politicians or public officials pursue private interests rather than public interests, they are vulnerable to bribery which interferes with social welfare in the end.

Endemic corruption derives from public contracts. It is known that monitoring agent behavior is difficult in the public sector (Fukuyama, 2004). A number of ODA resources are being allocated to developing countries by the type of project. The problem is that the exact value of projects is difficult to be monitored. As a result, it gives opportunities for corruption of public officials. This ensues lower-quality infrastructure projects and enfeebled public services, which is detrimental to growth (Moyo, 2009).

Some scholars have suggested that corruption 'greases' the wheels of development and helps to improve bureaucratic efficiency (Aidt, 2009; Bardhan, 1997; Mauro, 1995). They explained that corruption promotes efficiency by allowing individuals to correct government failures. Speed money paid by business people to government officials expedites bureaucratic procedures, and bribes would work harder (Aidt, 2009). Okada and Sarmreth (2012)'s study about the relationship between foreign aid and corruption illustrated that foreign aid contributes to reducing corruption. The result of the empirical research conducted by Tavares (2003) also provided an explanation that foreign aid decreases corruption. His explanation is that foreign aid may hinder public officials in recipients from applying discretion.

Meanwhile, most scholars view corruption in the process of dealing with ODA as a serious obstacle to development. Regarding the interminable debate whether corruption cause aid fatigue or not, Knack (2001)'s cross-country empirical study provides evidence that foreign aid may increase corruption. Mauro (1995) provided an explanation that adverse associations of corruption with investment and economic growth through the empirical study. For instance, if the integrity of bureaucracy improved, its investment rate would rise almost five percentage point, and it leads to GDP growth. De Vaal and Ebben (2011) took into account the institutional framework into the

relation between corruption and economic growth. They proved that the overall effect of corruption on economic growth is depends on the institutional setting of a country. Bauhr, et al., (2013)'s paper claimed that corruption can bring aid fatigue, but it depends on fundamental beliefs about the role of foreign aids. They identified that better understandings of moral, pragmatic and strategic reasons have impact on aid fatigue.

RESEARCH DESIGN AND METHOD

Research Question

This study starts from the question, "Is dependency on ODA related to the government effectiveness in developing countries?" Previous studies tried to find the relationship between impact of ODA and various aspects like growth, corruption, and governance. This study, on the other hand, is an attempt to focus on ODA from the perspective of governments. The first assumption of this study is that the more ODA resources flow into the government budget, the more a government of a developing country loses motivation to work effectively and efficiently. In other words, this study will assume that dependence on ODA is negatively correlated to the government effectiveness. This research also aims to examine corruption to explain the relationship between ODA and government effectiveness. It is likely that the more ODA grants and loans flow into the government expense, government effectiveness is impeded by public officials' self-interests and rent-seeking behaviors. Thus, we presume a government in a developing country is able to operate more effectively when the government has a strong ability to control corruption, compared to when it cannot control corruption.

Variables

The effectiveness of the government in developing countries is important because governments are the main agent of ODA. It seems that if governments in the developing world manage ODA resources more effectively, the aid effectiveness will also be improved. Therefore, the causal linkage between ODA and government effectiveness will be examined in the study.

The dependent variable of this research is the government effectiveness indicators of the World Bank's World Governance Indicators (WGI). Specifically, the government effectiveness indicator captures perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the

quality of policy formulation and implementation, and the credibility of the government's commitment to such policies (Kaufmann, et al., 2011). Satisfaction with public transportation system, roads and highways, and education system are also included to measure government effectiveness.

Data sources for the government effectiveness indicators include surveys of firms and households, as well as the subjective assessments of commercial business information providers, NGO, multilateral organizations and other public sector bodies (Kaufmann, et al., 2011). The data is scaled from 0 to 100 where 0 represents the lowest level of government effectiveness and 100 means the highest level of government effectiveness.

The World Bank releases the World Development Indicators (WDI) in which aid dependency ratios such as net official development assistance as a percentage of GNI, gross capital formation, imports of goods, services and primary income, and central government expenditure are included. Since the focal point of this study is the leading role of government, net ODA as a percentage of central government spending will be used as an independent variable.

The concept of the government competitiveness takes time and space into account. Even though ODA grants are given in the input stage, it is difficult for the government to generate output in a year. Hence, this study will use one-year lagged ratio of ODA to government expenditure, considering that normally fiscal year ends in a year.

Since this study aims to estimate the effect of ODA, we control for other variables that might have impact on government effectiveness. First, the GDP growth rate is controlled to capture changes in economies. Population and government expenses are also considered because these tend to respond to demographic factors. To minimize the effect of extreme values, the natural logarithms of GDP growth rate and population will be used. Trade openness, which is the sum of exports and imports of goods and services measured as a share of GDP, is controlled for the regression model because there is a positive correlation between openness to international trade and government size (Rodrik, 1996). Furthermore, influences of foreign direct investment on governance are also considered since foreign investors might lobby for improvements in governance (Busse & Gröning, 2009). Year dummies and region dummies are included in the regression in order to control for time and space. Regional dummy variables enable us to control the effects of unmeasured regional heterogeneity. The sample is split into six region groups to generate dummies representing East Asia & Pacific, South Asia, Middle East & North Africa, Sub-Saharan Africa, Europe & Central Asia, Latin America & Caribbean.

The mediator is measured by the World Bank's control of corruption indicators. With regard to measuring corruption, there are other corruption indices as well. However,

this study uses the World Bank's control of corruption indicators because WGI separates the government effectiveness indicators and the control of corruption indicators while using the same methodology, and control of corruption indicators focus on the public sector. Accordingly, using this indicator will allow us to test the mediation effect of the control of corruption on the government effectiveness. Similar to the government effectiveness index, the control of corruption index is also scaled from 0 to 100 with 100 representing the highest level of control of corruption.

After the studying the relationship between the ratio of ODA to government expense and government effectiveness is examined using pooled OLS (Ordinary Least Squares), the mediating effect of the capacity to control corruption will be analyzed by using the Sobel's test and Baron & Kenny's steps to test the mediation effects.

Table 1. Variables

Variables	Operationalization	Indicator	Source	Period
Dependent Variable: Government Effectiveness	Quality of public services independence from political pressures, policy formulation and implementation	Government Effectiveness	The Worldwide Governance Indicators (WGI) 2014	'05-'13
Independent Variable: ODA	Aid dependence on government expense	Net ODA received % of central government expense (t-1)	OECD DAC & World Bank	'04-'12
Mediating Variable: Corruption	Frequency of corruption among government officials, irregular payments in public contracts and taxation, etc.	Control of Corruption	WGI (2014)	'05-'13
Control Variables	Logged GDP growth rate (annual %)		World Development Indicators (WDI, 2014)	'05-'13
	Logged population		WDI (2014)	'05-'13
	Government expense (% of GDP)		WDI (2014)	'05-'13
	Trade openness (% of GDP)		WDI (2014)	'05-'13
	Foreign Direct Investment		WDI (2014)	'05-'13
Dummy Variables	Year			'05-'13
	Region: East Asia & Pacific (0), South Asia (1), Middle East & North Africa (2), Sub-Saharan Africa (3), Europe & Central Asia (4), Latin America & Caribbean (5)			

Method

Notwithstanding the advantages of using fixed effects model, it should be considered that the government effectiveness indicators are based on perceptions data, taken from surveys as well as expert assessments (Kaufmann, et al., 2011). As a matter of fact, if the WGI data is looked in detail, year-to-year variations in the WGI score are small. Therefore, although the data set is a panel data in the period 2004-2013 covering 82 countries, the hypotheses for this study will be tested through pooled OLS (Ordinary Least Squares) estimation. In the first step of analysis, regression models will be tested to demonstrate that the coefficients are coherently significant even if control variables and dummies are included.

In the second step of the analysis, mediating effects of control of corruption will be tested. To test mediator, the Sobel test[2] will be analyzed, and three more regression models will be estimated: first, regressing the mediating variable on the independent variable in model 3 (path A); second, regressing the dependent variable on the mediator in model 4 (path B); and in model 5, lastly, regressing the dependent variable on both the independent variable and on the mediator (Baron&Kenny, 1986).

Model 2 checks total effects, and model 3 and model 4 examine indirect (mediation) effects. If there is no longer a significant direct effect in model 5, it means that the mediating variable perfectly mediates the linkage between independent and dependent variables. Meanwhile, not only the significance of the coefficients but also their absolute size should be investigated. When the coefficient in direct effect model is statistically significant and smaller than the coefficient in total effect model, the mediator partially mediates the causal relationship between independent and dependent variables (Baron&Kenny, 1986; Rucker, et al., 2011). Multiple regression analysis and Sobel test are carried out using Stata 13.

2. The Sobel test is a method to determine the significance of a mediator between an independent variable and a dependent variable. The mediating effect is divided by the delta method standard error in equation $SE = \sqrt{\alpha^2\sigma^2_\beta + \beta^2\sigma^2_\alpha}$ and then compared to the normal distribution to examine its significance (MacKinnon, et al., 2002). The Sobel test are carried out using Stata 13.0 in this paper.

RESULT AND ANALYSIS

The ODA-government Effectiveness Relationship

The data set includes 82 countries from 2004 to 2013. For each variable, mean, standard deviation, minimum, maximum and the number of observation are provided in the table 2. The log of GDP growth rate and population are used in the empirical analysis.

Table 3 shows the correlations between variables and these correlations are quite strong. In the data set, the correlation coefficient between one-year lagged ratio of ODA to government expenditure and the government effectiveness is -0.457 at the 0.01 significant level. All of the variables are correlated with the dependent variable, government effectiveness, at the 0.01 significant level. In order to analyze the size of influence between independent variables and dependent variable, regression analysis should be carried out (Ko, 2014).

Figure 1 below shows the negative relationship between ODA as a proportion of government expenditure and government effectiveness with fitted values and quadratic fit values. Fitted values illustrate negative correlation between dependence on ODA and government effectiveness.

In the regression models of this analysis, the range of VIF is from 1.23 to 3.74. The range of mean VIF values in the regression models in this study is from 1.67 to 2.14. Therefore, multicollinearity did not pose a problem in this analysis. As indicated by Table 4, 25.3% of variance is explained in model 1, and model 5 can explain 76.9% of the variance. The F-test in the regression models from 1 to 5 is 0.000.

Table 2. Descriptive Statistics

Variable	Mean	Std.Dev.	Min	Max	Obs.
Government effectiveness (score: 0~100)	39.116	20.313	0.000	86.890	818
ODA/gov't exp (t-1) (% of central government expense)	30.750	40.322	0.004	229.654	554
Control of corruption (score: 0~100)	38.342	21.506	0.000	85.650	820
log GDP growth rate (annual %)	1.557	0.736	-2.719	3.541	736
log population	15.804	2.011	11.161	20.948	820
Government expense (% of GDP)	21.873	9.032	0.025	70.058	571
Trade openness (% of GDP)	84.859	36.131	22.000	224.000	795
Foreign Direct Investment (current US$)	-1.90E+09	5.99E+09	-6.81E+10	1.32E+10	677

Table 3. Correlation

	GovEf	ODA/gov't (t-1)	CoC	Log grth	Log pop	Govexp	Trd
Government effectiveness (Govef)							
ODA/gov't exp (t-1) (ODA/gov't (t-1))	-.457**						
Control of corruption (CoC)	.825**	-.305**					
log GDP growth rate (Log grth)	-.106**	.188**	-.168**				
log population (Log pop)	-.261**	.089*	-.462**	.152**			
Government expense (Govexp)	.246**	-.380**	.271**	-.069	-.245**		
Trade openness (Trd)	.206**	-.257**	.197**	-.012	-.490**	.323**	
Foreign Direct Investment (Fdi)	-.099**	.157**	-.079*	.045	-.343**	-.066	.254**

Figure 1. Correlation between ODA as a Proportion of Government Expenditure and Government Effectiveness

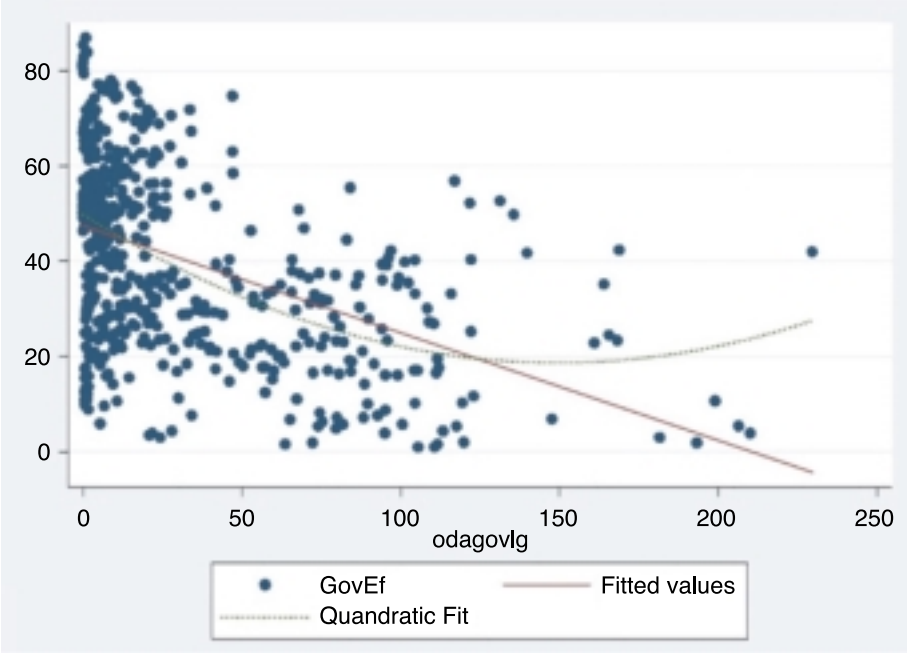


Table 4. The Impact of ODA on Government Effectiveness

Dependent Variable: Government Effectiveness (GovEf)		Model 1			Model 2		
		β	t-value	VIF	β	t-value	VIF
Independent Variable	ODA/gov't (t-1)	-0.196**	-8.29	1.29	-0.219**	-8.49	1.62
Control Variables	Log grth	0.818	0.65	1.24	0.513	0.41	1.28
	Log pop	-2.983**	-5.23	1.66	-3.724**	-5.72	2.28
	Govexp	0.025	0.23	1.33	0.049	0.41	1.70
	Trd	-0.030	-1.02	1.69	-0.067*	-2.08	2.15
	Fdi	-3.63E-10*	-2.37	1.24	0.000**	-2.79	1.32
Year Dummies	2006	-2.352	-0.66	1.84	-1.814	-0.52	1.84
	2007	-2.274	-0.65	1.90	-1.841	-0.54	1.91
	2008	-2.102	-0.60	1.90	-1.570	-0.46	1.91
	2009	-5.557	-1.42	1.73	-6.611	-1.73	1.75
	2010	-2.284	-0.67	1.99	-2.217	-0.67	2.00
	2011	-2.667	-0.78	2.03	-2.474	-0.74	2.06
	2012	-2.949	-0.80	1.83	-3.409	-0.95	1.85
Regional Dummies	1				-8.560*	-2.10	2.32
	2				0.019	0.00	2.22
	3				-6.030	-1.80	3.61
	4				-15.020**	-3.91	2.60
	5				-10.820**	-2.80	3.74
Constant		96.474**	8.54		119.517	8.38	
Number of obs.		406			406		
Mean VIF		1.67			2.12		
R-squared		.253			.303		
Adj R-squared		.228			.270		
F		.000			.000		

Note: β is unstandardized coefficient
*p < 0.05, **p < 0.01

The results of these regressions demonstrate that the coefficients for lagged ODA to government expenditure are statistically significant at the 0.01 levels. Overall, the coefficients of proportion of ODA to government expenditure variable are negative no matter what control variables are added. Therefore, the impact of aid on the government effectiveness is always negative and robust to equations.

In addition, the population also becomes statically significant at the significant level of 0.01, and the coefficients are negative in the models both 1 and 2. This result indicates that a government with large population is likely to be less effective than a government with small population. Year dummies in model 1 are not significant. In model 2, year dummies have no significant impact on the government effectiveness indicators except for 2011 at the 0.05 significant level. Regional dummies are statistically significant in all regions, except for Middle East & North Africa (Region 2), and the directions are negative. Table 4 below presents the effect of ODA to government expenditure on the government effectiveness from model specifications.

As indicated by figure 1, a considerable number of ODA variables are close to 0, though respective values are not 0. In order to verify the difference in effect of the volume of ODA to government expense, additional analysis, which divides ODA variables into two groups, was carried out. One of the groups is more than 50 percentile of the ODA variable, another group is the group less than 50 percentile in ODA dependence rate. The 50 percentile of the proportion of ODA to government expense is 11.916. Both of two groups are statistically significant at 0.01 significant level. One group, more than 50 percentile, indicates that the ODA dependence has negative impact on government effectiveness in the significant level of $p<0.01$. Another group, less than 50 percentile, was not statistically significant, but the negative direction of ODA on government effectiveness remains unchanged.

The Mediating Effect of Corruption Control

A significant coefficient of total effect is a necessary condition for testing mediation (Rucker, et al., 2011). It was proved that total effect, which is the causal relationship between aid dependency on government expenditure and the government effectiveness without the mediator, is significant in the first step of analyses. In the next step, the Sobel test is investigated to evaluate the mediation effect of ODA on the government effectiveness. The result of Sobel's test demonstrates that the total effect is significant and is negative. The coefficient of path A, the causal relationship between ODA and control of corruption, is -0.164. The B coefficient is 0.712 at the 0.01 significant level, indicating that the extent of corruption controlling has positively impact on the government effectiveness. The direct effect is also statistically significant, and the direction is

negative. However, it cannot be deduced that there are mediation effects of control of corruption. This is because the coefficient of direct effect (-.115) is larger than that of total effect (-.232), though indirect, direct and total effect are statistically significant at the significant level of $p<0.01$.

Besides the result of the Sobel test is summarized in the table 5 and figure 2, we divide observations into three groups according to the levels of corruption control. Total and direct effects in the three groups are all significant, but the results do not indicate the mediation effects of corruption control because the coefficient of total effect is smaller than that of direct effect. It means that the extent of corruption control is not a critical factor to determine the mediating effect. The results of the Sobel test by levels of control of corruption are described in appendix.

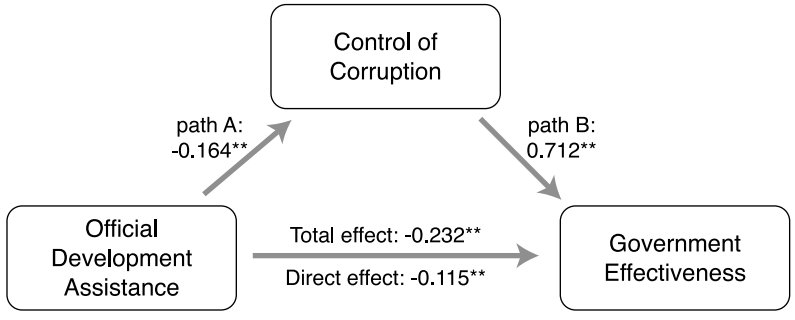
Lastly, the indirect (mediation) effect and the direct effect are tested with Baron & Kenny's four steps to cross-check whether control of corruption carries the mediation impact of ODA on the government effectiveness or not. The total effect has already

Table 5. Results of the Sobel's Test

Path	Coef	Std. Err.	Z
Sobel	-.117**	.015	-7.532
ODA → CoC (A coefficient)	-.164**	.021	-7.739
CoC → GovEf (B coefficient)	.712**	.022	32.808
Indirect effect	-.117**	.015	-7.532
Direct effect	-.115**	.011	-10.064
Total effect	-.232**	.019	-12.478

Note: *p < 0.05, **p < 0.01

Figure 2. Results of the Sobel Test



Note: *p < 0.05, **p < 0.01

been found to be significant and there is a negative relationship between ODA and government effectiveness. Three more regression models are analyzed to investigate the indirect and direct effect.

Model 3 considers the control of corruption as if it were a dependent variable. The result in model 3 presents that ODA influences control of corruption with the coefficient of - 0.158 at 1% level of significant. Same control variables from model 2 are used in model 3 and 4 to test mediation effects. Population and trade openness also have statistically significant negative relationship with control of corruption, and government expense and foreign direct investment have statistically significant positive relationship with control of corruption. Year and regional dummies are not found to be statistically significant, except for Europe and Central Asia (region 4).

The positive impact of control of corruption on the government effectiveness is also assessed in model 4 with the value of coefficient being 0.846 at 1% significant level. In addition to control of corruption, the result shows that population and trade openness have positive impacts on government effectiveness with p-value of less than 0.01. Though year dummies are not statistically significant, the effects of region in Sub-Saharan Africa, Europe & Central Asia, and Latin America & Caribbean on government effectiveness are significant and the directions of the values are negative.

Model 5 presents the direct effect of corruption control. The lagged ODA variable retains a negative relationship to the government effectiveness with controlling corruption control variable, and the estimated effect is statistically significant at 0.01 significant level. The positive coefficient for control of corruption is statistically significant in model 5. In order for the control of corruption variable to have a full mediation effect in the relationship between ODA and government effectiveness, the coefficient of ODA must not be statistically significant. However, since the effect of ODA on government effectiveness is significant, it turned out that control of corruption does not fully mediate the causal relationship between ODA and government effectiveness. Logged population is found to be significant at 0.05 significant level, and government expenditure has a negative effect on government effectiveness with p-value of 0.01. Still, year dummies are not significant, but the negative coefficients of region in Sub-Saharan Africa, Europe & Central Asia, and Latin America & Caribbean on government effectiveness are found.

Even if indirect and direct effects are statistically significant, the coefficients of the direct effect in model 5 and total effect in model 2 should be compared to judge if there is a partial mediation effect of corruption control. Control of corruption partially mediates between dependence on ODA and government effectiveness only when the beta value of total effect model is smaller than that of direct effect model. In the four regression models from model 2 to model 5, however, the comparison with the

Table 6. The Mediating Effect of Corruption Control

Variables		Model 3 Dependent: CoC			Model 4 Dependent: GovEf			Model 5 Dependent: GovEf		
		β	t-value	VIF	β	t-value	VIF	β	t-value	VIF
Independent Variable	ODA/gov't (t-1)	-0.158**	-5.99	1.62				-0.093**	-5.96	1.77
Mediator	CoC				0.846**	31.22	1.43	0.800**	27.89	1.58
Control Variables	Log grth	0.027	0.02	1.28	-0.071	-0.10	1.23	0.491	0.69	1.28
	Log pop	-5.790**	-8.71	2.28	1.949**	5.34	2.2	0.908*	2.21	2.73
	Govexp	0.359**	2.91	1.70	-0.164*	-2.41	1.66	-0.238**	-3.38	1.74
	Trd	-0.110**	-3.35	2.15	0.070**	4.06	1.86	0.021	1.12	2.21
	Fdi	0.000**	-4.11	1.32	0.000	0.87	1.37	0.000	0.96	1.38
Year Dummies	2006	-3.311	-0.93	1.84	1.855	0.95	1.82	0.835	0.42	1.85
	2007	-4.458	-1.29	1.91	2.395	1.24	1.85	1.726	0.88	1.91
	2008	-4.094	-1.18	1.91	1.984	1.04	1.90	1.705	0.87	1.91
	2009	-7.848	-2.01	1.75	0.294	0.14	1.74	-0.332	-0.15	1.77
	2010	-4.062	-1.20	2.00	1.358	0.72	1.95	1.032	0.54	2.01
	2011	-4.712	-1.38	2.06	1.866	0.98	1.99	1.296	0.67	2.07
	2012	-5.610	-1.52	1.85	2.103	1.03	1.80	1.080	0.52	1.86
Regional Dummies	1	-6.814	-1.63	2.32	-0.90	-0.40	2.07	-3.109	-1.32	2.34
	2	0.510	0.12	2.22	2.103	0.90	1.95	-0.389	-0.16	2.22
	3	2.570	0.75	3.61	-7.903**	-4.4	3.14	-8.086**	-4.18	3.61
	4	-9.364**	-2.39	2.60	-4.547*	-2.18	2.43	-7.529**	-3.38	2.64
	5	-1.929	-0.49	3.74	-4.807*	-2.44	2.91	-9.277**	-4.17	3.74
Constant		141.767**	9.73		-22.732**	-.2.95		6.101	0.67	
Number of obs.		406			438			406		
Mean VIF		2.12			1.96			2.14		
R-squared		.366			.752			.769		
Adj R-squared		.336			.741			.757		
F		.000			.000			.000		

Note: β is unstandardized coefficient
*p < 0.05, **p < 0.01

absolute size of coefficients demonstrates that the direct effect (β = -0.093) of ODA on the government effectiveness is larger than the total effect (β = -0.219) of ODA. Simply put, it is difficult to conclude that there are full or partial mediation effects of the control of corruption between ODA and government effectiveness as Sobel's test suggested. The result rejects the assumption that corruption in aid recipient countries is a barrier to improving governance.

LIMITATION AND FUTURE RESEARCH

The following limitations of this research have to be noted. First of all, this study used the pooled-OLS instead of the fixed effects model. The fixed-effects model allows us to analyze the impact of variables that vary over time and to control for impact or bias the independent or dependent variables (Baltagi, 2001). However, since the data set is perceptions based measures of government effectiveness, year-to-year fluctuations in the WGI score are minute. Therefore, though the data set is a panel data, the hypotheses for this study were tested through pooled OLS estimation.

Moreover, although all of the steps to test the mediator were statistically significant, the coefficient in direct effect was larger than the coefficient in total effect. In brief, against expectations, there is no full or partial mediating effects of the capacity to control corruption in public sector between ODA and government effectiveness. Deciding how to and where to use ODA grants and loans involves complicated processes. Thus, a better understanding of determinants of government effectiveness is required for the future research to find the moderator or mediator variable.

Furthermore, the concept of government competitiveness categorizes government's throughputs into various dimensions, such as structural capacity, the will and attitudes, work performance, financial capacity, and informationalization capacity. Nonetheless, this study only measured the government effectiveness. Future research may take account of other facets of government so that the research extends to the scope of the government in the broader sense of the government competitiveness.

Despite the limitations mentioned above, this study has significance in that the focal point of this study is the state-led development. Previous studies on the effect of ODA mainly focused on growth or governance. However, this study placed weight on the role of government because successful cases of late industrialization have been strongly associated with the government intervention (Öniş, 1991). It was observed that high ratios of ODA to government expenditure impede government effectiveness in developing worlds through cross-country empirical analyses.

The predominant view about corruption in developing countries is that corruption

is a major obstacle to its social development and governance as well as economic development. Nevertheless, this study failed to show the mediation effect of control of corruption between dependence on ODA and government effectiveness. In this respect, the perspectives that corruption spurs development should be reconsidered. The impact of ODA on corruption controlling may be different depending on the national income of a country. However, this study did not consider the income groups for countries because the number of low-income countries among 82 was less than 30, which is the minimum sample size for conducting a multiple regression analysis. Future research based on the different income groups may give us more valuable interpretations about the impact of ODA on corruption to improve government effectiveness at the different stage of development.

When it comes to variables, unlike other studies that used net ODA as a percentage of GNI or GDP, this study put the proportion of ODA to government expenditure as an independent variable. In addition, instead of economic growth or governance, which mixes government factors with civil society factors, government effectiveness indicator was used as the dependent variable. Moreover, this study made attempts to control time and regional variables. The concept of government competitiveness postulates that the time and spatial dimension should be considered to capture the changes in the features of the role of each government (Im, et al., 2014). Therefore, this study controlled the impact of time and space using year and regional variables.

CONCLUSION

Considering the fact that East Asian countries, Korea inclusive, have made rapid growth with governments' interventions, this study focuses on the role of government to achieve development from the perspective of government competitiveness. In this regard, this study made attempts to test relationship between dependence on ODA and government effectiveness in developing countries, and the mediating role of corruption control between them. The findings of the study verified that ODA as a percentage of central government expense has adverse impacts on government effectiveness in developing countries and the capacity to control corruption in public sector does not mediate the relationship between aid dependency on government expense and government effectiveness. It is likely that the recipient governments would not have to make desperate efforts to improve the quality of public administration when huge amount of ODA grants and loans flows into the government. Moreover, since the mediating role of corruption is not found, in-depth studies are necessary to find determinants that have positive impact on improving government effectiveness using the ODA resources.

According to the OECD aid statistics, the percentage of aids for government and civil society has been the highest in the social sector ODA since 2000. Even if inputs are increased, recipient governments need time to figure out how to effectively use these additional inputs and achieve successful outcomes. These governments should be wary of the threat of Dutch-disease effect. The traditional type of aids has been the project-based foreign aid. However, project-based aids cause merely short-term development in a specific area or sector due to aid fragmentation. Moreover, though the Paris Declaration and follow-up meetings place weight on ownership of recipients, unskillful recipients find it hard to manage aid resources effectively.

In order to implement effective and consistent development strategies using those large amounts of ODA resources, it is pivotal for each government of developing countries to raise the competitiveness with the long-term perspective. It is undeniable that talented officials in public administration had performed important roles in leading Korea's development policies (Im, 2009). Likewise, it is imperative for developing countries to make efforts to improve the quality of public administration and public service. That is to say, professionalism and high quality of bureaucracy must be established for human resource development in the government. In conclusion, aid effectiveness of a government can be achieved when the government strengthens its own competitiveness.

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APPENDIX

Results of the Sobel's Test by Levels of Control of Corruption

Path	Coef	Std. Err.	Z
Group 1: observations in the lower quartile			
Sobel	-.024*	.009	-2.555
ODA → CoC (A coefficient)	-.028**	.010	-2.844
CoC → GovEf (B coefficient)	.849**	.146	5.817
Indirect effect	-.024*	.009	-2.555
Direct effect	-.095**	.017	-5.579
Total effect	-.119**	.018	-6.437
Group 2: observations in between the lower and upper quartiles			
Sobel	-.115**	.016	-7.342
ODA → CoC (A coefficient)	-.162**	.021	-7.532
CoC → GovEf (B coefficient)	.711**	.022	32.868
Indirect effect	-.115**	.016	-7.342
Direct effect	.111**	.011	-9.718
Total effect	-.226**	.019	-12.066
Group 3: observations in the upper quartile			
Sobel	-.007	.017	-.413
ODA → CoC (A coefficient)	-.009	.023	-.414
CoC → GovEf (B coefficient)	.722**	.089	8.134
Indirect effect	-.007	.017	-.413
Direct effect	-.144**	.024	-5.927
Total effect	-.151**	.029	-5.149

Note: *p < 0.05, **p < 0.01