A Period Comparative Analysis on Determinants of Official Development Assistance (ODA) of South Korea

Yonsei University Kim Mi Lim

I. Introduction

The Official development Assistance (ODA) of South Korea is faced with its new starting point. On 25th November 2009, South Korea ascended to the Development Assistance Committee (DAC) of the Organization for Economic Cooperation and Development (OECD) as its 24th member country. The joining is meaningful in that South Korea became the first country whose role has changed from a recipient to a donor. Korea now acts a member of the committee, members of which serve more than 50 percent of official development assistance (ODA) of the world. One of the criteria which DAC requires to a country willing to enter is an appropriate level of ODA. **“Appropriate” means that annual expenditure of ODA is equal or larger than 0.1 billion US dollar or ODA to Gross National Income (GNI) ratio exceeds 0.2 percent.** When Korea expressed its will to join OECD DAC, an investigation team including chairmen visited Korea and released “Korea Peer Review Report” in 2008. The report recommended that Korea augment ODA GNI ratio to 0.25%, and Korea accepted it. Under these circumstances, its speed of increase is remarkable. For example, annual expenditure on ODA rose by 17.1% in 2012. As we can see in Figure 2, it is the fact that Korea’s ODA has expanded quantitatively, but another issue naturally arises, how and what criteria Korea allocates its ODA? It is an important question in the view of quality of ODA.

OECD DAC defines ODA as “those flows (ii.a) is administered with the promotion of the economic development and welfare of developing countries as its main objective;” Based on this definition, ODA tend to be allocated to nations where economic development is needed. If we narrow the range of economic development as an increase in income, ODA would be primarily allocated to low income countries. As Figure 1 shows, poverty is concentrated on Africa rather than other regions. However, Korea has allocated most of its ODA to Asia. As we can see in Figure 2, 57.3 percent of ODA is allocated to Asian nations in 2013. Based on this fact, we can infer that other variables except national income may affect allocation of ODA of Korea.

In actual, a number of researchers have studied determinants of ODA. Since 1970s, majority of studies are empirical researches on determinants of ODA. Traditionally, papers approach through the donor’s interests (DI) and recipient nations’ needs (RN) models (Mckinlay and Little, 1977; Maizels and Nissanke, 1984). In a donor’s interests (DI) model, expansion of political and economic influence toward recipient countries is an essential motivation of ODA(Black 1968; Eberstadt 1988). Meanwhile, in the sense of a recipient nations’ needs (RN)

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1 OECD DAC members (http://www.oecd.org/dac/dacmembers.htm)
2 ODA Watch Newsletter No.32 (http://www.odawatch.net/2694)
3 Ministry of Strategies and Finance, 3rd April 2013
model, socioeconomic development of developing countries and humanitarian support are main purposes of ODA (Kegley 1993; Lumsdaine 1993; Cingranelli 1993). Papers on determinants of ODA of Korea are mostly based on the two models (Kim and Oh 2012; Kim 2009; Lee 2005). This paper also starts with an assumption that development assistance of Korea has both characteristics; donor’s interest and recipient’s need. Based on the assumption, this paper tries to see whether ODA of Korea has developed in accordance with recipient’s need and humanitarian purpose after its entry into OECD DAC. According to world polity theorists, join to international organizations or institution itself has a power to change behavior of countries. This paper aims to examine whether allocation of the Korean government has changed more coincided with goals of OECD DAC after its ascendance to the committee.
Also, this paper pays attention to the power of the Korean government. Each government such as Kim Dae Jung government and Lee Myung Bak government has different pursuing values. For example, one government puts emphasis on economic interests, and on the other hand, the other government focuses on humanitarian needs. In order to compare determinants of each government, this paper conducted comparative analysis.

In addition, this paper tries to go forward with world polity theory. The donor’s interests (DI) and recipient nations’ needs (RN) models are criticized due to their limitation. The point is that it fails to reflect exogenous condition. Interaction among donor countries or effects of worldwide trend is examples. As more and more the world is globalized, exogenous conditions such as pressure of international standard and institution becomes more significant. Hence, in order to overcome those limitations, this paper adopted variables derived from world polity theory. The variables are inserted to see whether trend of the world society or alignment with policies of the United States works in ODA allocation of Korea.

This paper deals with the case of Korea, and it has a certain meaning. Since the global financial crisis in 2008, traditional major donors have been faced with difficulty in financing for aid. On the other hand, nontraditional donors including China and South Korea, and private foundations have emerged as major donors. Compared to researches on traditional donors such as the United States, Japan, and Scandinavian countries, studies on the emerging donors have not been accumulated sufficiently yet. In this point of view, this paper dealing with determinants of foreign aid of Korea is meaningful. For our analysis, this paper sets the amount of ODA from Korea to 164 recipient countries from 1987 to 2013 as a dependent variable and empirically analyzes determinants of ODA allocation through random effects tobit (panel) analysis.

II. Literature Review

The traditional framework of researches on determinants of ODA is “the donor’s interests (DI) and recipient nations’ needs (RN)” models. According to the donor’s interests (DI) model, donor countries primarily consider their political and economic interests when they allocate their ODA. On the other hand, recipient nations’ needs (RN) model argues that donors have priority over socioeconomic development of recipient countries. Based on characteristics of donor countries, one of or both of two models are applied to analysis. For example, in case of Japan, the donor’s interests (DI) model was used (Stein, 1998; Hook and Zhang, 1998), and for analysis on Scandinavian countries, recipient nations’ needs (RN) model was utilized (Gates and Hoeffler, 2004). However, traditional models have a limitation in that they are not able to reflect interaction among donor countries and exogenous variables such as trend of world society.

When we take a look at results of researches, a majority of papers point out economic variables such as export are significant determinants since 1990s (Berthelemy and Tichit, 2000 et al.). The result implies that donors weigh more on their economic interests than other variables. Maizels and Nissank (1984) concluded that interests of donor countries are highly revealed in bilateral aid in their comparative study on ODA of the United States, France, Germany, etc. Berthelemy and Tichit (2002) also found that economic interests of donor countries are decisive in ODA allocation of DAC countries. Papers dealing with ODA of South Korea have also drawn similar conclusions. A relationship of economic determinants such as Foreign Direct Investment (FDI) and ODA is significant (Lee 2005, Noh 2008, Kim 2008). Since this paper tries to analyze determinants of ODA allocation from 1987 to 2013, the whole period, and this paper adopted explaining power of those economic variables and put them in the analyzing equation. However, this paper tries to go one more step by inserting an energy variable. One of previous studies deals with energy variable is a paper of Kim Gyu Won (2008). It tried to examine whether the Korean government used ODA as a tool of energy diplomacy in an effective way. This previous paper used energy production in recipient countries as a variable. However, the previous study and preliminary
analysis of this paper imply that energy production is not a statistically meaningful variable. This paper hence selected new energy variable. That is fuel export amount of recipient countries. The reason of picking the variable is that capacity of exporting fuel of recipient countries would be substantially meaningful variable to Korea.

On the other hand, recipient nations’ needs (RN) model has developed as well. Alesina and Dollar (2000) found that Scandinavian countries have a tendency to concentrate their ODA on least developed countries and actively consider “just” standards such as governance and openness of recipient countries in their allocation process of ODA. This recipient nations’ needs (RN) model is often used for analyzing the case of advanced nations in international development cooperation. The interesting is that as Japan was faced with ethical and moral pressure by domestic and international society, allocation behavior of Japan changed to meet needs of recipient countries (Tuman and Ayoub, 2004). Based on recipient nations’ needs (RN) model, this paper also verifies whether ODA of Korea is allocated in a way of meeting needs of recipient countries.

The donor’s interests (DI) and recipient nations’ needs (RN) models explain motivation of ODA as a rational behavior of countries, and exclusively focuses on endogenous conditions; how much a donor country exports to a recipient country. These models hence have a blind spot in that they rarely take account of exogenous conditions like international pressure. That is to say, through traditional models, it is difficult to show channels of exogenous effects on ODA allocation. According to world polity theorists, rationality of countries are bounded due to cultural demand and pressure of international society (Meyer, Boli, Thomas and Ramirez, 1997) They maintain that attempts to find motivation of behavior of countries in endogenous conditions failed to notice other structural conditions; enlargement of interdependence of countries, spread of international standard and principles, and increment of influence of global agents including international civil organizations. Since world polity theorists think exogenous conditions are significant, they focus on some specific mechanism related to cultural influence of world society which can affect motivation of countries. International conferences, trend of standard, and influence of international organizations are examples. This paper also pinpoints mimetic isomorphism. That is to say, as companies mimic strategies of successful agents under uncertainty of environment, countries accepted principle and model. They sometimes mimic without clear and rational justification. For example, when the total amount of ODA granted by the world increases owing to a trend of standard, other countries also recognize this increase as a trend of standard and align with the flow. Another example is that ODA is concentrated on countries which received a large amount of ODA world widely. Or a country would be affected by its peer countries. In actual, there is a phenomenon that can be explained by world polity theory, a huge growth of aid between 2009 and 2010. As mentioned in previous part, in 2009, Korea entered into OECD DAC, and 2010 is the first year for Korea to act as a member country of OECD DAC. Hence, this paper has a purpose of examining whether social determinants are significant or not, and determinants of ODA of Korea has changed to humanitarian goals after entry into OECD DAC by using statistical method.

III. Methodology

1. Data and Analysis Variable

   (1) Dependent Variable and Data

   This paper sets annual ODA disbursement to a recipient country as a dependent variable. The standard of annual data is Net Disbursement and Current Prices (Lancaster, 2006). The source of data is QWIDS, the online

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5Gu and Kim (2011)

6Gu and Kim (2011)
OECD DAC prescribed recipient countries. According to the criteria, 183 countries have been recipient countries from 1987 to 2013. Even though 12 countries\(^7\) have never received ODA of Korea, this paper includes those countries. This paper thinks that deciding not to allocate ODA is also a decision, and this paper includes non-received countries. However, 18\(^8\) countries do not have sufficient data such as GDP per capita or fuel exports are excluded in the analyzed nation list. Also, Korea itself is deleted from the list. Korea is on the recipient list, because OECD statistics have been written since 1961. At that time Korea was categorized as a recipient country by OECD. Therefore, the number of analyzed nations is 164. The list of the countries is on <Appendix 1>.

The analyzed period is from 1987 to 2013. The reason is that Korea has substantially acted as a donor country since 1987. Hence, official ODA statistics of Korea starts in 1987 and ends in 2013\(^9\). This paper tried to analyze the whole period in which official ODA statistics exist. Hence, total 27 years are the analyzed period. Considering 164 countries with 27 years, total 4428 “year-country” pairs were made. One of the subjects this paper analyzes is changes in determinants of Korea since 2009. Hence, we divide the period into two periods. One is from 1987 to 2008, and the other is from 2009 to 2013. Lastly, we compare determinants of Kim Dae Jung (1998-2002), Noh Moo Hyun (2003-2007), and Lee Myung Bak (2008-2012) governments. Based on these data, statistical analysis was conducted.

(2) Independent Variables and Data

The table1 presents summary statistics of variables used in the analysis.

<table>
<thead>
<tr>
<th>Classification</th>
<th>Variable</th>
<th>Characteristic</th>
<th>Obs</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Independent Variable</td>
<td>(GDP \text{ per capita}_{it}) (dollar, log)</td>
<td>Time-varying</td>
<td>4428</td>
<td>6.81</td>
<td>2.52</td>
<td>0</td>
<td>11.45</td>
</tr>
<tr>
<td></td>
<td>(GDP \text{ per capita}_{it}^2) (quadratic form)</td>
<td>Time-varying</td>
<td>4428</td>
<td>52.71</td>
<td>26.46</td>
<td>0</td>
<td>131.06</td>
</tr>
<tr>
<td></td>
<td>(Trade_{it}) (dollar, log)</td>
<td>Time-varying</td>
<td>4428</td>
<td>16.25</td>
<td>5.44</td>
<td>0</td>
<td>26.16</td>
</tr>
<tr>
<td></td>
<td>(FDI_{it}) (dollar, log)</td>
<td>Time-varying</td>
<td>4428</td>
<td>5.48</td>
<td>7.44</td>
<td>0</td>
<td>22.42</td>
</tr>
<tr>
<td></td>
<td>(Fuel \text{ Export}_{it}) (dollar, log)</td>
<td>Time-varying</td>
<td>4428</td>
<td>9.91</td>
<td>9.59</td>
<td>0</td>
<td>26.56</td>
</tr>
<tr>
<td></td>
<td>(GDP \text{ growth rate}_{it}) (annual percent)</td>
<td>Time-varying</td>
<td>4428</td>
<td>3.60</td>
<td>7.18</td>
<td>-64.05</td>
<td>149.97</td>
</tr>
<tr>
<td></td>
<td>(ODA^{it}_S) (dollar, log)</td>
<td>Time-varying</td>
<td>4428</td>
<td>11.30</td>
<td>7.92</td>
<td>0</td>
<td>23.14</td>
</tr>
</tbody>
</table>

\(^7\)Aruba, Bermuda, Cayman Island, Cyprus, French Polynesia, Macao SAR, China, Montserrat, New Caledonia, Northern Mariana Islands, Qatar, Turks and Caicos Islands (The 13 countries which have never received ODA of Korea)

\(^8\)Nauru, Montserrat, Cook Islands, Kosovo, Mayotte, Netherlands Antilles, Sts Ex-Yugo. Unspec., Mekong delta project, Islas Malvinas (Falkland Islands), Gibraltar, Niue, Tokelau, Virgin Island, Wallis and Futuna, East African Community, Anguilla, Taiwan, St. Helena (18 countries)

\(^9\)On a basis of 24\(^{th}\) April, 2015
| $ODA_{it}^{society} - ODA_{it}^{Korea}$ (dollar, log) | Time-varying | 4428 | 16.32 | 6.55 | 0 | 23.81 |
| $ODA_{it}^{world}$ (dollar, log) | Time-varying | 4428 | 25.28 | .40 | 24.70 | 25.98 |

| Dependent Variable | $ODA_{it}$ (dollar, log) | Time-varying | 4428 | 7.81 | 6.20 | 0 | 19.27 |

Economic interests between recipient countries and Korea are represented by $Trade_{it}, FDI_{it}, Fuel Export_{it}$, and $GDP\ growth\ rate_{it}$. If Korea pursues economic interests such as export and energy security, Korea would concentrate its ODA on countries with large amount of trade, FDI, and fuel export or on countries that have higher GDP growth rate. This paper uses export and import statistics by country provided by Korea International Trade Association (KITA). $Trade_{it}$ is sum of annual export and import of each country. In case of $FDI_{it}$, this paper uses Foreign Investment Statistics of Korea Exim bank. The data is corrected with the standard of real remittance amount rather than reporting amount. Fuel export data is based on fuel export (percent of merchandise export) and merchandise exports data of World Bank. If Korea puts importance on security of fuel, ODA of Korea would be more likely to be allocated to competitive fuel exporters. In addition, if the Korean government puts its emphasis on bright prospect of recipients’ economy, ODA is likely to be allocated to recipients with high GDP growth rates. The source of annual GDP growth rate is World Bank.

Another independent variable this paper assumes as a significant determinant on ODA is a degree of economic development. This paper selected GDP per capita as an indicator of economic development. If Korea concerns economic development of recipient countries at first, it is highly likely that ODA of Korea is concentrated on low income countries. On the other hand, Alesina and Dollar (2000) and Berthélemy and Tichit (2004) introduced and used quadratic forms. The quadratic form of GDP per capita shows us that an increasing or decreasing rate of ODA toward income. By using quadratic form, this paper wants to know whether the rate has positive sign or not. For this, World Bank data converted constant US dollar (2005) was utilized.

Lastly, according to World Polity theory, trend of standard has a power to change behavior of nations. There are various ways to measure trend of standard or pattern, but in this paper total amounts of ODA of the world each year and total amounts of ODA of Korea to the recipient country are considered. Korea hardly evades a global trend. Hence, Korea would increase its ODA expenditure faced with international pressure. On the other hand, this paper tries to verify alignment of ODA of Korea and the United States. Since the United States is an important peer to Korea, this paper anticipates that ODA of Korea is likely to act in concert with that of the United States. In addition, this paper analyzes that ODA of Korea is aligned with the donor society. The source of these three variables is QWIDS, the online statistics system of OECD DAC.

2. Analysis Method

When papers explain decision procedures of ODA allocation of advanced nations, they took two-step analysis. According to Cingranelli and Pasquarello(1985), the United States exclude some countries in its recipient country list (gatekeeping procedure), and decide its recipient list at first. In the next stage, the US government confirms the amount of ODA of each recipient country. Also, according to Furuoka(2005), Japan adopted ‘conditionality’ policy on countries which violate human rights in 1990s. As a result, Japan ceased their granting to 11 countries from 1991 to 1994. In addition, Neumayer(2003) adopted this two-stage analysis on European advanced nation of ODA. In cases of United States, Japan, and European nations that have distinct standard of selecting recipient countries or conditionality, two-stage analysis would be an appropriate analysis method. In this case, at the first stage Logit or Probit analysis are conducted, and at the second stage, OLS
regression is carried out only on countries which received ODA.\textsuperscript{10}

However, in case of Korea, since Korea does not have clear standard for selecting recipient countries and conditionality yet, this two-stage analysis seems not to be proper. In addition, if we select countries which have received ODA and conducts OLS, we may be faced with truncation and selection bias issue. Moreover, in case of cross sectional time series analysis, heteroscedasticity and autocorrelation issues exist in a nation. Hence, adopting OLS regression has limitation (Lee, 2005)\textsuperscript{11}.

Since analysis of this paper includes OECD DAC recipient countries which have never received ODA from Korea, it brings in random-effects tobit model. It helps to solve methodological problems. Due to non-recipient countries whose point is zero, dependent variable is censored and therefore OLS regression is estimated with bias. Tobit model called as “censored regression” is estimated by maximum-likelihood method, and modifies regression considering censored dependent variables. Hence, it pursues better model suitability. In addition, this paper adopted random-effects model as one way to overcome heteroscedasticity and autocorrelation. This method adds one more error term on country units beside an error term on “country-time”.\textsuperscript{12}

Analyzing equation using random effect tobit model can be represented as following.

\[
\ln(O_{it}) = \beta_0 + \beta_1 \ln(GDP_{it}) + \beta_2 (\ln(GDP_{it}))^2 + \beta_3 \ln(Trade_{it}) + \beta_4 \ln(FDI_{it}) + \beta_5 \ln(Fuel_{it}) + \beta_6 \ln(GDP \text{ growth rate}) + \beta_7 \ln(O_{it}^{(P)}) + \beta_8 \ln(O_{it}^{(E)}) + \beta_9 \ln(O_{it}^{(warid)}) + \mu_i + \epsilon_{it}
\]

\[
E[\epsilon_{it}] = 0 \text{ and } Var[\epsilon_{it}] = \sigma^2
\]

(\text{where } i = 1, 2, \ldots, 164 \text{ and } t = 1987, 1988, \ldots, 2013)

\(\epsilon_{it}\): error term for country – year pair

\(\mu_i\): for embedded error in a individual country

\(O_{it}^{(P)}\): The amount of ODA from Korea to a recipient country \(i\) at time \(t\)

\(O_{it} = O_{it}^{(P)} \text{ if } O_{it}^{(P)} > 0\)

\(O_{it} = 0 \text{ if } O_{it}^{(P)} \leq 0\).

\(GDP_{it}\): GDP per capita of a recipient country \(i\) at time \(t\)

\((\ln(GDP_{it}))^2\): quadratic form of \(\ln(GDP_{it})\)

\(Trade_{it}\): Sum of export and import between Korea and a recipient country \(i\) at time \(t\)

\(FDI_{it}\): Foreign Direct Investment (FDI) from Korea to a recipient country \(i\) at time \(t\)

\textsuperscript{10} GuJeong Woo, Kim DaeWook (2011)

\textsuperscript{11} Same as footnote 19

\textsuperscript{12} Gu and Kim (2011)
Table 6 presents analysis results of random effects tobit regression on determinants of ODA allocation of Korea. In the table, there are 9 dependent variables and regression coefficients.

First of all, according to the result on whole period (1987-2013), countries with relatively high income received more ODA from the Korean government. It is confirmed by significant positive relationship of GDP per capita of recipient countries and ODA. The quadratic form tells us that ODA allocation of Korea diminishingly increasing to recipients’ income. That is to say, ODA of Korea increases at a decreasing rate. This result contradicts with our intuition; relatively low income countries are more likely to receive ODA from Korea. One way to explain this result can be possible by the results of $T_p$, $\tilde{F}_p$, and $\tilde{F}_F$. We defined $T_p$, $\tilde{F}_p$, and $\tilde{F}_F$ as indicators of economic interest of Korea with recipient countries. This table says that economic interest is highly important determinant. It is certified through significant positive relationship of Trade, FDI, and Fuel Export and ODA of Korea. Those three variables have strong effects on allocation of ODA. Meanwhile, results imply that variables representing trend of standard and ODA policy of the United States have significant effects on ODA allocation of Korea. According to this result, ODA of Korea is aligned with that of the United States. Also, when Korea allocates its ODA, how other donor countries allocate their ODA is important. In addition, the total amount of ODA all donors grant to all recipient countries has significant and positive effects on ODA allocation.

Secondly, this section is to compare determinants of Korea’s ODA before and after its ascendance into OECD DAC. In case of recipients’ income, Korea still allocates its ODA to countries with higher income even after the entry to OECD DAC. However, it is notable that explaining power of economic interests of donor countries variables such as trade, FDI, and fuel exports has significantly decreased. Based on this result, we can say that ODA of Korea is on the way in accordance with humanitarian goal. Variables representing the effects of world society continue to show their strong explaining power before and after the entry into OECD DAC.

Lastly, no matter which government allocates its ODA, the Korean government has granted development assistance to developing countries with relatively high income at decreasing rate. In case of Kim Dae Jung government, trade and FDI was a powerful driver. On the other hand, in Roh Moo Hyun and Lee Myung Bak government, FDI was the strongest determinant among economic interest variables. What is interesting is that the world trend (How much the whole world grants in that year) and how other donor countries allocate their ODA (which country and how much) were significant throughout all Korean governments. Based on these figures, we could say that Korea is deeply intertwined with the world donor society. Also, without those variables, it is difficult to explain allocation of Korea’s development assistance properly.

V. Summary and Conclusion
This paper studied determinants of ODA allocation of Korea from 1987 to 2013 through random-effects tobit model. The analysis is based on traditional DI and RN model, but accepts social variables stemmed from world polity theory. To sum up, economic interests such as trade, FDI, and Fuel Export have played significant roles in ODA allocation of Korea. It can be one of explanation on ODA of Korea is likely to be granted to relatively high income countries. Economies which afford to vividly trade with Korea, to attract investment from Korea, and to export their fuel products to Korea would be relatively high income developing countries. In this context, statistics indicate that ODA of Korea is likely to be allocated to relatively high income countries. On the other hand, results of variables stemmed from world polity theory are interesting. The ODA policy of Korea is aligned with that of the United States. Also, the result ascertains that the Korean government focuses its ODA on countries which are intensively granted by the world society. Moreover, ODA expenditure of Korea grew in the period when total ODA of the world increased. As Finnemore and Sikkink (1998) named this phenomenon as norm cascade, and in case of Korea, norm cascade seems to have worked.

Even though the coefficient of recipient countries’ income has not changed after its ascendance into OECD DAC, explaining power of economic interest variables has significantly weakened. This result could be a sign that Korea’s ODA is on the way in accordance with international goal pursuing humanitarian needs of recipient countries. In all periods including all Korean governments, world trend variables have been significant. Also, the degree of alignment with ODA policy of the United States has strengthened. These results imply that Korea has been deeply participated in international donor society.

Table 6. Analysis Results of determinants of ODA allocation of Korea (Random-Effects Tobit Regression)

<table>
<thead>
<tr>
<th></th>
<th>(1) 1987-2013</th>
<th>(2) 1987-2008 (Before DAC)</th>
<th>(3) 2009-2013 (After DAC)</th>
<th>(4) Kim</th>
<th>(5) Roh</th>
<th>(6) Lee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Log(GDP per capita_it)</td>
<td>2.88***</td>
<td>3.13***</td>
<td>2.80***</td>
<td>2.82***</td>
<td>2.47***</td>
<td>3.53***</td>
</tr>
<tr>
<td>(Log(GDP per capita_it))^2</td>
<td>-0.30***</td>
<td>-0.31***</td>
<td>-0.28***</td>
<td>-0.26***</td>
<td>-0.21***</td>
<td>-0.33***</td>
</tr>
<tr>
<td>Log(Trade_it)</td>
<td>.31***</td>
<td>.35***</td>
<td>.17</td>
<td>.27**</td>
<td>.03</td>
<td>.11</td>
</tr>
<tr>
<td>Log(FDI_it)</td>
<td>.08***</td>
<td>.08***</td>
<td>.10**</td>
<td>.13**</td>
<td>.14***</td>
<td>.14***</td>
</tr>
<tr>
<td>Log(Fuel Export_it)</td>
<td>.09***</td>
<td>.10***</td>
<td>.01</td>
<td>.04</td>
<td>.06</td>
<td>.02</td>
</tr>
<tr>
<td>GDP growth rate_it</td>
<td>.02</td>
<td>.02</td>
<td>.03</td>
<td>.05</td>
<td>.03</td>
<td>.02</td>
</tr>
<tr>
<td>Log(ODA_US_it)</td>
<td>.08***</td>
<td>.06**</td>
<td>.23***</td>
<td>.09</td>
<td>.26***</td>
<td>.13*</td>
</tr>
<tr>
<td>Log(ODA_gov_it - ODA_Korea)</td>
<td>.49***</td>
<td>.45***</td>
<td>.45**</td>
<td>.50***</td>
<td>.36***</td>
<td>.54***</td>
</tr>
<tr>
<td>Log(ODA_world_it)</td>
<td>5.49***</td>
<td>6.66***</td>
<td>12.94***</td>
<td>11.73***</td>
<td>2.61**</td>
<td>27.64***</td>
</tr>
</tbody>
</table>

Log likelihood -10104.10 -8107.89 -1884.56 -1894.72 -1959.76 -1856.00
Wald chi^2 1341.11 951.73 322.79 167.47 255.72 334.35
N of countries 164 164 164 164 164 164
N 4428 3608 820 820 820 820

Note: () is Std. Err. * p < .05, ** p < .01, *** p < .001
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http://www.mofa.go.kr
http://www.mosf.go.kr
http://law.go.kr
http://www.odakorea.go.kr
http://www.oecd.org
http://www.worldbank.org
### Appendix 1 Analyzed Countries List

<table>
<thead>
<tr>
<th>ODA&lt;sup&gt;Korea&lt;/sup&gt; &gt;:154 countries</th>
<th>Ecuador</th>
<th>Mali</th>
<th>St. Lucia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Afghanistan</td>
<td>Egypt, Arab Rep.</td>
<td>Malta</td>
<td>St. Vincent and the Grenadines</td>
</tr>
<tr>
<td>Albania</td>
<td>El Salvador</td>
<td>Marshall Islands</td>
<td>Sudan</td>
</tr>
<tr>
<td>Algeria</td>
<td>Equatorial Guinea</td>
<td>Mauritania</td>
<td>Suriname</td>
</tr>
<tr>
<td>Angola</td>
<td>Eritrea</td>
<td>Mauritius</td>
<td>Swaziland</td>
</tr>
<tr>
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<td>Peru</td>
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<td>Cameroon</td>
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<td>Philippines</td>
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<td>Cabo Verde</td>
<td>Jordan</td>
<td>Rwanda</td>
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<td>Chad</td>
<td>Kenya</td>
<td>Sao Tome and Principe</td>
<td>Zimbabwe</td>
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<td>Kiribati</td>
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<td>ODA&lt;sup&gt;Korea&lt;/sup&gt; = 0: 10 countries</td>
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<td>Senegal</td>
<td>Aruba</td>
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<td>Colombia</td>
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<td>Congo, Dem. Rep.</td>
<td>Lao PDR</td>
<td>Sierra Leone</td>
<td>Cyprus</td>
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<td>Costa Rica</td>
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<td>Macao SAR, China</td>
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<td>Djibouti</td>
<td>Malawi</td>
<td>South Sudan</td>
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<tr>
<td>Dominica</td>
<td>Malaysia</td>
<td>Sri Lanka</td>
<td></td>
</tr>
<tr>
<td>Dominican Republic</td>
<td>Maldives</td>
<td>St. Kitts and Nevis</td>
<td>Total : 164 countries</td>
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</table>

Note: During the analyzed period (1987~2013), the number of countries which have ever received ODA from Korea is 160, but 154 countries are included in the analysis except countries who do not have enough data. Countries which have not received ODA from Korea are all non-recipient countries, but 10 countries which have sufficient data for analysis are included in analysis.
<Appendix 2> Analyzed Countries Categorized by Income Level

<table>
<thead>
<tr>
<th>Low Income</th>
<th>Lower Middle Income</th>
<th>Upper Middle Income</th>
<th>High Income non OECD and High Income OECD</th>
</tr>
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<tbody>
<tr>
<td>Afghanistan</td>
<td>Chad</td>
<td>Guinea-Bissau</td>
<td>Mali</td>
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<td>Benin</td>
<td>Comoros</td>
<td>Haiti</td>
<td>Mozambique</td>
</tr>
<tr>
<td>Cambodia</td>
<td>Ethiopia</td>
<td>Liberia</td>
<td>Niger</td>
</tr>
<tr>
<td>Cabo Verde</td>
<td>Gambia, The</td>
<td>Madagascar</td>
<td>Rwanda</td>
</tr>
<tr>
<td>Central African Republic</td>
<td>Guinea</td>
<td>Malawi</td>
<td>Sierra Leone</td>
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</table>

<table>
<thead>
<tr>
<th>Armenia</th>
<th>Georgia</th>
<th>Lesotho</th>
<th>Paraguay</th>
<th>Syrian Arab Republic</th>
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<tbody>
<tr>
<td>Bangladesh</td>
<td>Ghana</td>
<td>Mauritania</td>
<td>Philippines</td>
<td>Timor-Leste</td>
</tr>
<tr>
<td>Bhutan</td>
<td>Guatemala</td>
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<td>Samoa</td>
<td>Ukraine</td>
</tr>
<tr>
<td>Bolivia</td>
<td>Guyana</td>
<td>Moldova</td>
<td>São Tomé and Príncipe</td>
<td>Uzbekistan</td>
</tr>
<tr>
<td>Cameroon</td>
<td>Honduras</td>
<td>Mongolia</td>
<td>Senegal</td>
<td>Vanuatu</td>
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<td>Congo, Rep.</td>
<td>India</td>
<td>Morocco</td>
<td>Solomon Islands</td>
<td>Vietnam</td>
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<td>Côte d'Ivoire</td>
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<td>Nicaragua</td>
<td>South Sudan</td>
<td>West Bank and Gaza</td>
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<td>Egypt, Arab Rep.</td>
<td>Kyrgyz Republic</td>
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<td>Sudan</td>
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<td>Papua New Guinea</td>
<td>Swaziland</td>
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<tr>
<th>Albania</th>
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<th>Mauritius</th>
<th>St. Lucia</th>
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</thead>
<tbody>
<tr>
<td>Algeria</td>
<td>Costa Rica</td>
<td>Iraq</td>
<td>Mexico</td>
<td>St. Vincent and the Grenadines</td>
</tr>
<tr>
<td>Angola</td>
<td>Cuba</td>
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<td>Cyprus</td>
<td>Malta</td>
<td>Singapore</td>
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<td>Trinidad and Tobago</td>
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