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Master's Thesis of Arts

Determinants of Korean Education Aid

한국 교육 ODA 의 결정요인

February 2017

Global Education Cooperation Major

Graduate School of Education

Seoul National University

Jeon, Min Jeong

Abstract

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Jeon, Min Jeong

Global Education Cooperation Major

Graduate School of Education

Seoul National University

South Korea is one of the few countries to transform from an aid recipient country to an aid providing country that has received attention from the international aid society since 2009. It has been eight years since South Korea has become a member of the OECD's Development Assistance Committee(DAC) and actively assumed its role as a donor. South Korea is particularly well-known for its characteristic experience and emphasis on providing aid based on its core strengths. Despite such glamorous appearance and overwhelming attention among aid society, many concerns regarding aid performance arise for newly emerging donors such as South Korea. Though, studies conducted by South Korea are very little and when it comes to sector approach, it is even scarce. In the era of post-2015, it will be necessary to access South Korea's donor behavior in order to achieve the Sustainable Developmental Goals (SDGs) by providing empirical analysis of its aid allocation. Therefore, this study aims to understand how aid is distributed to particular recipients, especially its core sector; education aid.

The prior purpose of this study is to find out whether South Korea's education aid is allocated accordingly to recipient countries' educational needs. Then, the study aims to examine which factors are most influential upon the decision process in allocating education aid. This study will be conducted by empirically examining South Korea's education aid commitment to 85 recipient countries during the period of 2006 to 2014 with data extracted from the OECD Creditor Reporting System (CRS). The Tobit model is used with variables selected based on the Donor-Interest and Recipient Need model. Lastly, South Korea's education aid allocation will be reviewed by examining the total aid, different educational levels and two distinctive periods; before and after era of South Korea as an official member of OECD DAC.

The limitation of the study is that as South Korea's aid allocation itself fluctuates throughout the period, it will only be possible to see a general and overall view of its aid. Though the study will be able to provide insights of how South Korea's education aid behaved and should behave in the context of donor-interest and recipient need despite its limitation. It will also contribute to filling the gap in the aid literature on aid effectiveness and its determinants by sectoral and country level.

Keyword: Korean ODA, ODA, Education Aid, Korean Education Aid, Aid Allocation, Aid Determinants

Student Number: 2012-21485

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Chapter 1. Introduction

South Korea has become a member of OECD's Development Assistance Committee(DAC) and has announced that it will become a major donor of official development assistance, shortened as ODA (Kim and Oh, 2012). There is yet no other country like South Korea among the newly independent nations after World War II that became a DAC member of OECD. Moreover, it is also one of the few countries that its ODA budget has not decreased during the global financial crisis of 2009 (Sohn, 2011a). South Korea's ODA budget has increased more than ten times from 237.1 million U.S. dollars in 2000 to 2378.3 million U.S. dollars in 2014.

South Korea's aid distributions are mainly hinged on its core strengths and aspiration to make its aid programs distinctive based on South Korea's unique assets. Furthermore, the education sector is determined to be one of the strongest and biggest aid sector provided by South Korea. Therefore, it is hard to deny the fact that as one of the emerging and nontraditional donors such as China, India and private foundations, South Korea alone plays a critical role in assisting developing nation (Kim and Oh, 2012). This is a key reason why both scholars and practitioners are widely interested in South Korea's aid policy in hopes to study and set precedents for the new donors (Sohn, 2011a) and to apply findings to developing countries.

However, Manning (2006) claims that there have been serious concerns over emerging donors. As aid policies and practices of emerging donors are inconsistent with improved international aid architecture, there is a high risk of enlarging debt crisis, waste public investments, or delay required policy reforms in aid-recipient

countries. Although the global society is well known for its role in international development assistance that more prosperous nations provide aid to less affluent nations, such effectiveness of that assistance has been the subject of controversy.

Throughout the decade, the worldwide debate on official development assistance was focused on increasing the volume of ODA, which has been decreased from the 1990s and improving aid effectiveness. Although there are contrary arguments on whether aid should be increased or not, all analyses recognize the importance of aid effectiveness.

Among several arguments over how to improve aid effectiveness, many studies claim that it is important to appropriately set targets and that aid should be performed according to its promises to enhance aid effectiveness. Therefore, investigating factors of allocation in delivering aid is necessary to improve the expected aims (Alesina and Dollar, 2000).

There are 166 academic empirical papers that examine development aid allocation according to Doucouliagos and Manning (2009). Nonetheless, there is hardly any sector-by-sector research despite recent literature that claim more analyses are in demand for more accurate evaluations of aid effectiveness (Findley et al., 2010). In terms of research in the education sector, it is even more limited.

While a majority of the criticism is focused on international aid, a substantial share of criticism is directed at the effectiveness of international assistances to education more specifically (Thiele et al., 2006; Fredriksen, 2008). Such concerns have led the development assistance community to question the effectiveness of education aid itself. Thus, retrospective assessments examining the effectiveness of the impact of education aid projects have been undertaken and donors have increased

their support for analytical work on the determinants of education aid (Fredriksen, 2008; Michaelowa and Weber, 2006).

In this context, the purpose and goals of South Korean aid as a new donor have also been provoking controversy by questioning its allocations and effectiveness. Little has been researched about how South Korea has and is performing despite the expectations ever since EDCF (1987) and KOICA (1991) were established. Only recently have a few researchers started to analyze how South Korea allocates aid to individual countries. The researchers of relevant analyses all claim that there are not enough studies that examine the determinants and impact of South Korea's official development assistance (Chun et al., 2010; Kim and Kim, 2013; Kim and Oh, 2012; Kim, 2008; Koo, 2011; Lee, 2005; Lee and Park, 2007; Lee, 2012). Consequently, there is a need to analyze how South Korea has been allocating aid to individual countries, particularly by its key sector, education, in the absence of comprehensive guidelines or centralized authority.

Therefore, this research aims to find out how education aid is distributed to particular recipients through empirical analysis. This study will specifically look into whether education aid is appropriated accordingly to recipients' educational needs. Then, the study aims to examine which factors most influenced the decision process of distributing education aid. Based on OECD Creditor Reporting System(CSR) database, South Korea's education aid allocated to 85 recipient countries during the period of 2006 to 2014 will be empirically analyzed by using the Tobit model. Its education aid will be closely looked into by different perspectives; from total aid to aid by different levels and periods.

Although the study will not be able to explain every pattern of why and how

South Korea has allocated its education aid to particular countries, it will be able to give an overall view of the allocation of South Korea's education aid and contribute to the literature of empirical studies in the educational and country sector.

Chapter 2. Literature Review

2.1. Aid Flows

When it comes to foreign aid allocation, the literature can be divided into two parts. One part is about the aid effectiveness while the other one is about determinants of foreign aid. Kang (2009) claims both aid allocation and effectiveness are problems that are related to optimization of aid. It is deemed to be beneficial if aid is allocated accordingly to appropriate factors. Alesina and Dollar (2000) simply define such determinants of foreign aid as “which donor gives to which recipient and why”. Thus, this research aims to reveal the determinants of foreign aid questioning to whom and why South Korea gives aid. When determinants of foreign aid are identified, these factors are recognized as the purpose of or motivation for foreign aid.

Earlier studies investigating such underlying principles of aid allocation to developing countries is being conducted mainly from two approaches; the realistic approach and the idealistic approach. The realistic approach explains that the purpose of foreign aid is the self-interest of the donor. Whether aid is used directly or indirectly, its main aim is to improve national interest. The donors, based on the realistic approach, are mainly interested in economic benefits, power over regional and global levels, and security advantage. On the other hand, the idealistic approach explicates the purpose of aid in a humanitarian view. The key intention is to fulfill the needs of partner countries but not the donors'. The idealistic approach is interested in the economic, social, and political improvement of the peoples' lives in

recipient countries.

Research models were developed based on these two traditional approaches; the Donor Interest (DI) model and the Recipient Need (RN) model. These two empirical research models are the most common models used to explain the purpose of foreign aid as shown in preceding studies (Alesina and Dollar, 2000; Berthélemy and Tichit, 2004; Berthélemy, 2006a, 2006b; Maizels and Nissanke, 1984; Mckinlay and Little, 1977).

2.2. Donor-Interest Aid Flows

Most of the studies on determinants confirm that donor self-interest plays an important role in determining aid allocation. Sohn (2011a) states that factors that represent a donor's interest effectively explain the motivation of its foreign aid. Alesina and Dollar (2000) correspondingly contend that strategic and historical factors are more influential to donors in allocating bilateral aid than recipient countries' developmental needs.

More recently, Berthélemy (2006a) compared donors' aid allocation by using a very large three-dimensional panel dataset and finds that most donors behave in a self-interested way, which supports the findings of Alesina and Dollar (2000). Maizels and Nissanke (1984) define donor interest as political or military alliances, influence, and expansion of trade volume in their empirical research in five countries: United States, France, German, Japan, and UK. Maizels and Nissanke (1984) suggest that the US's bilateral aid is heavily determined by security, power, and political interests; and UK shows more interest in trade interest while Japan concentrates on its regional interest in East Asia. In terms of UK, McGillivray and Oczkowski (1992)

found that there is a tendency of granting bilateral aid to its former colonies. Such donor interest factor is more significant in bilateral aid than multilateral aid. Younas (2008) concludes that OECD countries allocate more aid to recipients who import goods in which donor nations have advantage in production. Ali and Isse (2006) argue that trade, private credit, foreign direct investments, GDP per worker, and government consumption are the main factors influencing allocation of aid. Doucouliagos and Manning (2009) support donor interest flow of aid by examining the motivation of three new donors: Greece, Luxemburg, and Portugal. The study shows a variety of motives for each country while sharing one common characteristic. None of the three countries gave aid to poor countries. Greece allocates aid to its neighbors; Luxembourg tends to give aid to those relatively more developed while Portugal allocates aid to its former colonies. Such commercial interests are considered to be significant features of aid giving.

In short, studies analyzing the allocation of aid from donors to recipient countries mainly conclude that aid is allocated by donor-interest, especially political and strategic factors.

2.3. Recipients-Need Aid Flows

Several studies exist that identify recipient need criteria to be an important element in the aid allocation process. According to Mishra et al. (2012), indicators that are used in studies to explain recipient need include: (a) income per capita, (b) population, (c) democracy, (d) governance, (e) civil liberties, (f) infant mortality, (g) education level, etc. However, unlike donor interest factors, no aid is fully allocated accordingly to a recipient country's developmental need.

Berthélemy (2006a) organizes that Austria, Ireland, Switzerland and most Nordic Countries are donors who reflect recipient need the most whereas Australia, France, Italy, Japan and the United States are the most self-interested donors. Studies examining the determinants of Nordic aid allocation to recipient countries recognize that their aid patterns are more influenced by humanitarian needs than donors' interests (Alesina and Dollar, 2000; Gates and Hoeffler, 2004). Gates and Hoeffler (2004) discover that Nordic aid distribution differs from other bilateral aid donor patterns by using global panel data set from 1980 to 1999 of 91 recipient countries. Norway, Denmark, Sweden and Finland seem to be free from self-interest as they provide more aid to democracies with a good human rights record and do not provide more aid to political or economic allies like any other bilateral donors. Nordic countries' aid patterns are significantly orientated towards their objectives of poverty alleviation, the promotion of democracy and human rights.

McGillivray and Oczkowski (1992) find UK favor its ex-colonies, however, humanitarian interests are also considered in allocating its aids. Gounder (1994) accesses the Australian aid and finds that its bilateral aid allocation is influenced both by donor interest and recipient need factors. Berthélemy and Tichit (2004) investigate the aid allocation of 22 OECD DAC donor countries from 1980 to 2000 of 137 recipient countries. The study identifies that aid is allocated to recipients with better economic and political environments since 1990, which means that the recipient need is taken into consideration. More recently, Mishra et al. (2012) looked into the factors explaining aid allocation by bilateral and multilateral donors using data of 146 recipient countries from 1990 to 2007. The study discovers that the recipient need and donor interest motives are both important factors in bilateral and

multilateral aid allocation.

Researches that aim to find recipient-centered aid donors that were briefly discussed above. Not many countries seem to allocate aid purely by the recipient need, though the Nordic countries are a noble exemplar in the sense of allocating aid based on recipient need.

2.4. Sector Level(Education) Aid Flows

Research on aid effectiveness including that of education aid is extensive. Whether education aid can achieve its intended targets or not is questioned by many scholars. The conclusions of most of the studies are contradictorily leaving unsolved questions regarding the effectiveness of education aid. There are differences in the studies of how education aid specifically enhances, for example, economic growth or education development. Donor countries suggest that they consider that key constraints on aid effectiveness of education are being addressed and that, on balance, the positive impacts of aid outweigh the costs and removing these constraints, is still a work in progress (Fredriksen, 2008).

In this context, Farooq (2012) questions whether these constraints are inherent features of education aid or the consequences of poor allocation practices by donors. Farooq contends in his study that one of the tentative answers to the question is that education aid can be effective only if donors select education aid projects appropriately. In this sense, aid allocation matters. However, despite intensive studies in the aid allocation and effectiveness, analysis of aid allocation at the sectoral level including education is limited.

Among scarce studies, Yee (2012) suggests educational variables that

determine the allocation of education aid in the study of “The Analysis of Education Sector Official Development Assistance Allocation”. Yee examines the allocation of education aid for 138 countries from 1995 to 2007. Variables that reflect the education level, environment and economic governance in the education sector¹ are studied along with GDP per capita, population, rights, and governance (general determinants of aid allocation). Yee finds that secondary enrollment rate, percentage of population under 15 and high primary pupil-teacher ratio of recipient countries significantly affect the allocation of education aid.

Buchert (1995) analyzes education aid patterns and policies of Denmark, Sweden and Holland based on its education strategy in “Current Foreign Aid Patterns and Policies on Education in Developing Countries among Like-minded Nation”. The study shows different donor countries’ patterns, focus of education aid and also particular educational determinants that affect donors’ aid allocation Buchert (1995) finds that Dutch foreign aid is allocated to low income countries especially with a focus on basic education while Swedish education aid is concentrated on primary education and vocational training in line with its global educational targets though questioning its adequacy for development.

Lewin (2011) examines the patterns of British aid to education from 1989 to 2001. The author examines the top 20 recipients of education aid through key education development indicators including GNP per capita, Human Development Index, population, proportion of population under 15, population growth rate,

¹ The variables reflecting education level of recipients used in the study are primary enrollment rate, secondary enrollment rate, adult literacy rate, primary pupil-teacher ratio, ratio of girls to boys in primary and secondary education, population under 15, public spending on education relative to GDP and public spending on education per capita.

illiteracy rate, primary enrollment rate, difference in the proportion of males and females enrolled in primary school, primary expenditure per student as a percentage of GNP per capita and lastly, total expenditure on education as a percentage of GNP. Lewin (2011) claims that education aid tends to be allocated to smaller gender disparities in primary enrollment level and higher proportion of GNP spent on education.

As mentioned above, studies examining particular sectors of aid allocation are scarce. It is more limited when examining the education aid allocation by its sub-sectors. Thus, this study will contribute to fill the gap in the aid allocation literature of education aid.

2.5. Donor-Interest and Recipient-Need Aid Flows of Korea

A number of studies of South Korea recently started increasing since the country began to increase its aid volume in the twenty-first century, including studies on the effectiveness and determinants of South Korean aid (Chun et al., 2010; Kim and Kim, 2013; Kim and Oh, 2012; Kim, 2008; Koo, 2011; Lee, 2005; Lee and Park, 2007; Lee, 2012). These studies assess the determinants, allocation, effectiveness and challenges of South Korea's ODA based on its targets and objectives. Although, the amount is not significant, the studies provide some examinations of how South Korea is allocating aid and how much recipients' needs are reflected despite its short history. Most studies conclude that South Korea allocates aid based on donor interest, especially by volume of exports and FDI to recipients, the GDP and distance of recipient countries. There are some signs of recipient need reflected in determining aid allocation but lack significant results on humanitarian variables.

Moreover, the distance of recipient country from South Korea and the total amount of ODA received from other donors are found to be significant factors in the allocation of South Korean aid which demonstrates its interest in international and regional politics. On the other hand, the infant mortality rate and basic education level lack relevance to the determinacy of South Korean aid allocation, implying its low humanitarian interest.

Kim and Oh (2012) show interesting findings by examining South Korean ODA allocation by different income groups of recipients. Kim and Oh (2012) claim that South Korea's ODA policy may possibly have a dual-track structure. When aid is directed to relatively higher-income developing countries, donor interest is more preferred, while a more humanitarian approach is detected for aid to lower-income developing countries. Furthermore, they find that aid is directed to higher-income developing countries consistently, irrespective of decade or political regime when breaking the panel dataset into different groups of years and recipient countries for 154 recipient countries from 1987 to 2009.

Kim (2009) concludes that aid from KOICA and EDCF are largely determined by the amount of exports to the recipient country especially in Asia according to cross-section data and panel data analysis model. However, Kim (2009) suggests that South Korea would be able to achieve both humanitarian and national interest goals simultaneously if it gives aid more strategically based on donor interest. This could be possible by focusing on fields that South Korea has a competitive advantage in, such as education.

In the era which Chun et al. (2010) describe as "where South Korea's ODA framework is still under construction and characterized as lingering between the

pursuit of national interests and observance of global standards represented by DAC's guidelines, the most and the least South Korea can do is to implement and allocate aid accordingly to its targets in the most effective way to gain effects as high as possible". If aid is not allocated accordingly to the intended target, the desired effects will never be earned.

Chapter 3. Korean Education Aid Allocation

3.1. An Overall Picture of South Korea's Education Aid

Before looking into empirical analysis of determinants of South Korea's education aid, this chapter will look into the overall architecture of South Korea's education aid. This section especially aims to understand the inclusive picture of South Korea's education aid among OECD DAC countries² with data extracted from OECD Creditor Reporting System(CRS) for the period of 2006 to 2014 based on data availability. Table 1 briefly shows the overall volume of South Korea's education aid and its total ODA.

Table1. Share of Education ODA and Total ODA, South Korea

	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
Total ODA	675	1053	1454	1449	1809	1623	1752	2238	2378	14435
Education ODA	135	160	114	141	324	199	127	337	228	1768
EDU/ Total(%)	20%	15%	8%	10%	18%	12%	7%	15%	10%	20%

Note: All figures are in current million US\$.

Source: OECD CRS Data (2006-2014), organized by author.

This chapter looks into South Korea's aid behavior as a donor member of OECD DAC by examining South Korea's aid and compare it with that of OECD DAC countries. Although there are other donors despite OECD DAC countries, this

² Refer to Data Appendix A for the list of OECD DAC countries.

study will only consider OECD DAC donors since they take a share of 72 percent of the education aid allocated by all donors (including OECD DAC countries) as Table 2 shows. Moreover, in order to better understand South Korea's performance, its aid will be investigated by different perspectives; ODA flows, channels, types, regional distributions and sub-sectors throughout the remaining section.

Table 2. Share of Education ODA of OECD DAC Countries Among Donors

	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
All donors	10383	11336	11807	13407	13239	12507	12157	12336	13537	110709
DAC	8421	8346	9111	9585	9646	9012	8419	8192	9135	7986
DAC/ All (%)	81 %	74%	77 %	71 %	73 %	72 %	69 %	66 %	67 %	72 %

Note: All figures are in current million US\$.

Source: OECD CRS Data (2006-2014), organized by author.

Among OECD DAC countries, the top 15 donors of education aid are listed in Table 3.³ The five largest education aid donors are Germany, France, United States, Japan and United Kingdom while South Korea is the 11th largest donor in absolute amount. Moreover, these five countries are also the largest donor countries when calculated by total ODA in the same period.⁴ When education aid is divided by total ODA amount, the largest donor countries become Greece, Slovak Republic, Slovenia, Portugal, and New Zealand. Greece has committed 32 percent of its aid to education which is the largest amount out of OECD DAC countries while South Korea

³ 15 countries have been listed in order to include South Korea.

⁴ The largest total ODA donor countries are United states, Japan, Germany, France and then United Kingdom.

committed 12 percent of its aid to education. It is notable that the amount of Greece's education aid itself is three times smaller than that of the absolute amount of Germany.

Table 3. Top Donor Countries of Education ODA, OECD DAC

Top donors by absolute volume				Top donors by share			
Country	Total ODA	Education ODA	Share (%)	Country	Total ODA	Education ODA	Share (%)
Germany	1092.20	160.35	8 %	Greece	16.18	518	32 %
France	867.44	146.50	8 %	Slovak Republic	32	9	29 %
United States	2496.87	86.74	15 %	Slovenia	10.7	22	21 %
Japan	1456.12	73.55	17 %	Portugal	29.74	580	20 %
United Kingdom	642.39	55.39	3 %	New Zealand	32.28	594	18 %
Netherlands	482.40	43.03	5 %	Austria	74.88	1,333	18 %
Australia	305.80	41.44	9 %	France	867.44	14650	17 %
Canada	314.92	29.29	9 %	Poland	37.8	60	16 %
Norway	331.73	25.91	14 %	Czech Republic	24.5	37	15 %
Spain	257.50	21.70	9 %	Germany	1092.20	160.35	15 %
South Korea	144.36	17.69	8 %	Australia	305.80	41.44	14 %
Belgium	150.40	17.58	8 %	Luxembourg	24.61	3.30	13 %
Austria	74.88	13.33	12 %	South Korea	144.36	17.69	12 %
Sweden	290.15	9.17	12 %	Belgium	150.40	17.58	12 %
Denmark	161.77	9.10	18 %	Ireland	58.90	9.10	11 %

Note: All figures are in current million US\$.

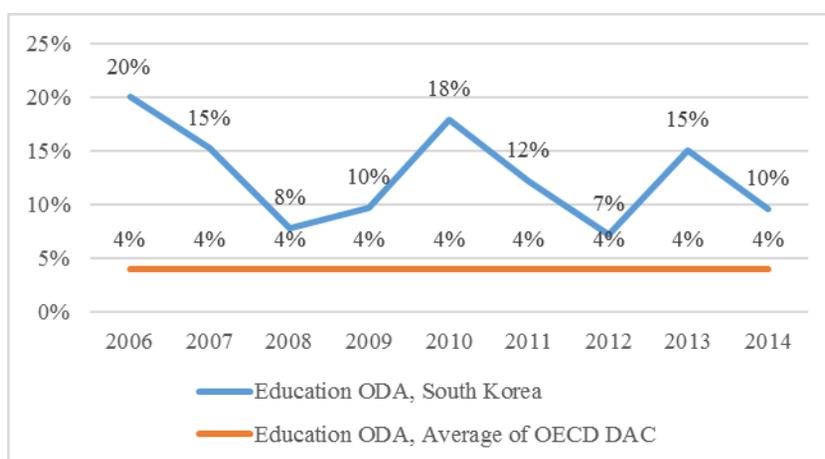
Note: Countries that appear in both lists are bolded.

Source: OECD CRS Data (2006-2014), organized by author.

As elaborated by Chart 1, 12 percent of the total aid from year 2006 to 2012 is approximated to be South Korea's education aid by average. The largest share of education is 20 percent in 2006 while the smallest share, 7 percent, was committed to be delivered in 2012. However, when looking at the absolute amount of the commitment, there is not much difference for both years. Moreover, South Korea

provide well above the OECD DAC average percentage of its ODA to education which is 4 percent. In other words, although South Korea provide less education aid than the OECD DAC average in absolute amount, its share is not as low. Consequently, South Korea's aid performance cannot yet be underestimated as a newcomer donor.

Chart 1. Share of Education ODA by Total ODA, South Korea & OECD DAC



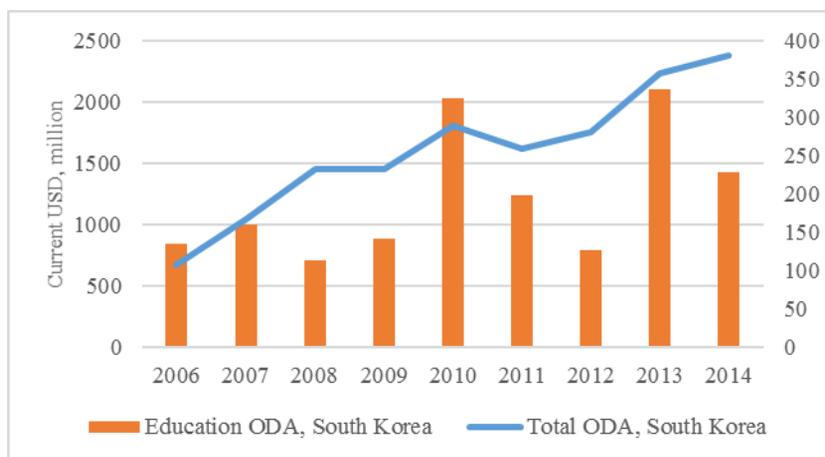
Source: OECD CRS Data (2006-2014), organized by author.

When looking at the flow of education aid by year through chart 2, it is hard to see a steady pattern in the commitment of education aid as it fluctuates throughout the time. Although South Korea's education aid did not increase in accordance with the total ODA, the overall education aid amount has doubled from the first year while the entire ODA tripled throughout the same period.

Despite the global financial crisis of 2009, South Korea has robustly increased its total ODA in 2010 which is due to South Korea's active participation in the aid society after joining OECD DAC in 2009. Since then, South Korea started

enacting the Framework Act on International Development Cooperation and developed the Strategic Plan for International Development Cooperation. The mid-term ODA policy for 2011-2015 including the education sector and Country Partner Strategies (CPS) for selected priority partner countries have been established. Such CPS was used as a basic guideline in delivering aid to priority countries for particular key sector. According to its policy strategies, South Korea's most important principle in delivering aid is "select and focus" to enhance aid effectiveness with limited resources. Therefore, it is undeniable that South Korea indeed strived and has endeavored to improve its entire ODA system, integrated strategies and coordinated management systems after becoming an official international donor (Kwak, 2015). Such attempts can be recognized as commitments to enhance the effectiveness of aid. Not even a decade has passed since its transition from a recipient country to a donor and most of its strategic policy aims for the year of 2015. Therefore, it is important to take into account the limitations in examining South Korea's education aid with data only up to year of 2014 and consider the lack of preceding studies in such a short period of time.

Chart 2. Share of Education and Total ODA, South Korea

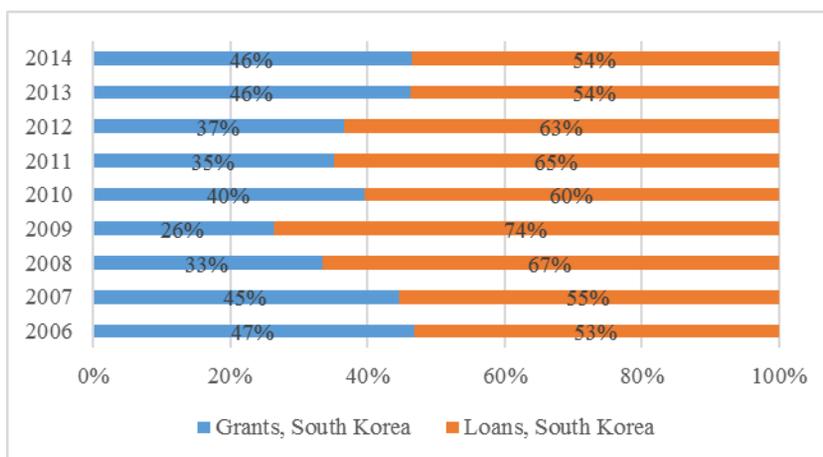


Source: OECD CRS Data (2006-2014), organized by author.

Chart 3 and 4 each illustrates how education aid flow is committed to allocate to its partner countries. The flow is mainly distinguished by grants or loans. Grants are transferred in cash or in kind of transaction with no legal debt incurring by the recipient whereas loans are transmission of cash or in kind which legal debts incur according to OECD. Grants are preferred as an instrument of development policy especially for the least developed countries (LDC) in the global context of highly indebted developing countries. Nevertheless, South Korea's education aid significantly relies on loans as demonstrated in Chart 3. The share of loans stays above 50 percent of the total education aid while more than 70 percent are allocated as grants for OECD DAC countries. In contrast to the global context, South Korea has experienced significant benefits from loans in the changeover from a recipient county to a donor country. Despite its constructive effects of loans, South Korea does seem to put more effort in changing its profile in response to the international issue (Marx and Soares, 2013). This study will not consider the different flow types of the

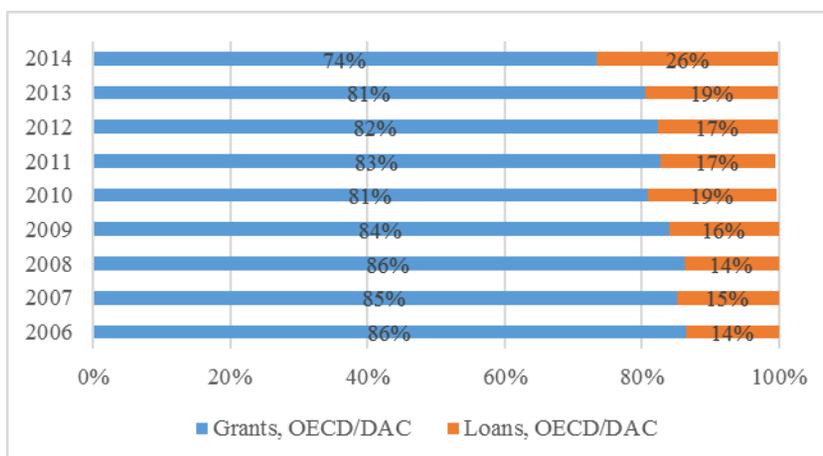
aid but it will be possible to look into the differences for its allocation and determinants in future studies.

Chart 3. Share of Education ODA Flow, South Korea



Source: OECD CRS Data (2006-2014), organized by author.

Chart 4. Share of Education ODA Flow, OECD DAC



Source: OECD CRS Data (2006-2014), organized by author.

ODA is committed to be disbursed to each recipient countries by different types of channels such as the public sector, Non-Governmental Organizations (NGO), civil society, Public-Private Partnerships (PPP), multilateral organizations and others. Looking at chart 5, it is notable that 92 percent of South Korea's education aid is committed to be provided through the public sector. Public sectors are central and local governments, public corporations and other kinds of public entities. In the context of South Korea, the public sector is mainly consisted of two main actors; the Ministry of Foreign Affairs and Trade (MOFAT) and the Ministry of Strategy and Finance. The former ministry is in control of developing grant aid which is then implemented by Korea International Cooperation Agency (KOICA). The latter ministry is responsible for concessional loan aid policy and is implemented by the Korea Eximbank's Economic Development (EDCF). Additionally, approximately 30 different ministries, agencies and municipalities are included in providing aid in small amounts. The share distribution of OECD DAC countries' ODA channel types is more evenly distributed although the largest share of the ODA channel is identical as South Korea's.

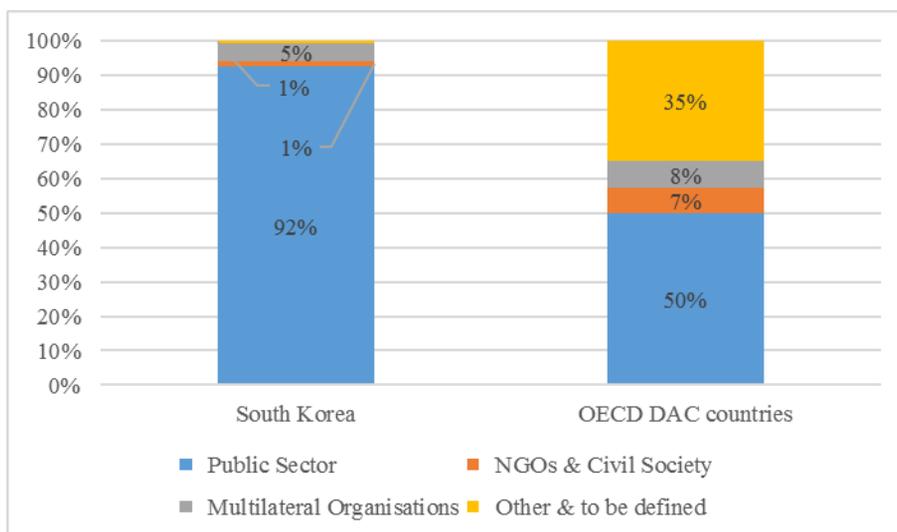
When discussing the involvers of aid of South Korea, the issue of fragmentation comes up. According to "Korea's Provincial Government's ODA: Current Status and Challenges as cited in Education Aid Watch 2015 (Global Campaign for Education, 2015)"⁵, there are at least 27 provincial and district level

⁵ This is according to the Re-shaping Development Institute (ReDI) and the Korea Legislation Research Institute (KLRI)'s joint research "Korea's Provincial Government's ODA: Current Status and Challenges" (National Research Council for Economics, Humanities and Social sciences: 2015) cited in Education Aid Watch 2015(Global Campaign for Education, 2015).

government bodies for the 30 ministries and agencies which ultimately makes up of more than 176 ODA activities. Moreover, a share of 35 percent is committed to education out of the total share of aid devoted by these affiliates. The occurring issue is that as education aid is formed, designed and delivered by each agencies, the harmonization and alignment is threatened due to lack of a control body and system.

South Korean officials are aware of this issue and is striving to align its aid more suitable to the global aid context. Furthermore, South Korea's aid players have a high tendency in following South Korea's framework and strategy plans when implementing aid. Various motives can explain such behavior, for example, conspired purpose to acquire project approvals from the government and agencies, to receive decent evaluation of the project or, at best, in order to enhance aid effectiveness and harmonization. Regardless of the current debates on harmonization of South Korea's public channel of aid, this study will look at the total education aid without differentiating aid by its channels.

Chart 5. Share of Education ODA Channels, South and OECD DAC



Source: OECD CRS Data (2006-2014), organized by author.

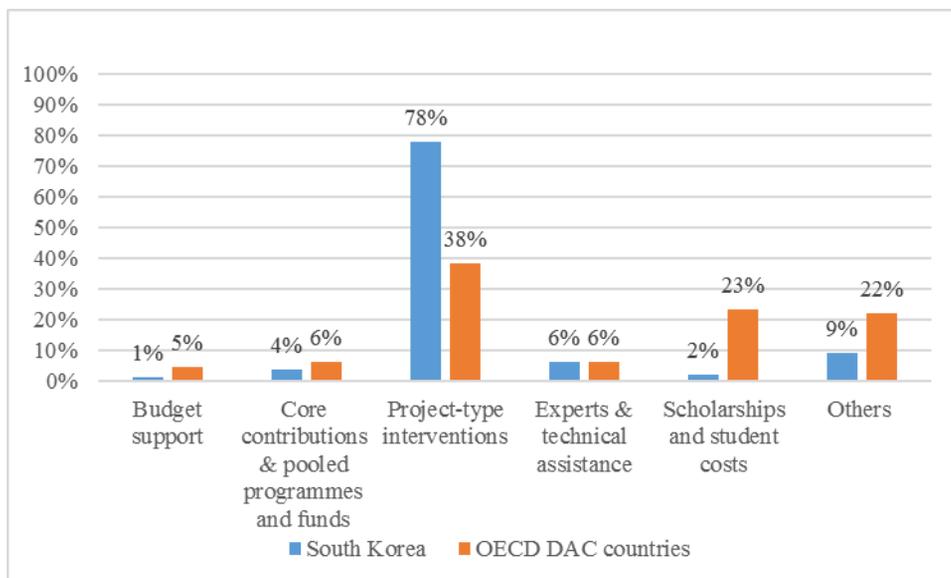
78 percent of South Korea’s education aid is committed in a form of project when examined by types⁶. Chart 6 displays the difference of the share of types of South Korea and OECD DAC countries. A project is “a set of inputs, activities and outputs, agreed with the partner country to reach specific objectives or outcomes within a defined time frame, budget and an area” according to OECD.⁷ This may give an important implication to understand the irregularity of education aid flow.

⁶ Refer to OECD list of ODA types.

⁷ According to OECD, a project is “a set of inputs, activities and outputs, agreed with the partner country, to reach specific objectives/outcomes within a defined time frame, with a defined budget and a defined geographical area. Projects can vary significantly in terms of objectives, complexity, amounts involved and duration. There are smaller projects that might involve modest financial resources and last only a few months, whereas large projects might involve more significant amounts, entail successive phases and last for many years. A large project with a number of different components is sometimes referred to as a program, but should nevertheless be recorded here”.

As Lee (2014) mentioned, project type intervention is a more donor-centered ODA as it guarantees more of the partner countries' ownership and does not require responsibility or commitment as much as other types of ODA. Project type of ODA gives the donor country a higher flexibility to remove or increase its ODA. For this reason, South Korea's education aid could be a good source to analyze the questioning donor's pledge or its determinants of aid allocation. Project-type share is also the largest share for OECD DAC countries, although the percentage is about 38% with a more even distribution. The next largest share, 23 percent, is the scholarships and student costs in donor countries, especially the imputed student cost. This is due to the high percentage of education aid committed to post-secondary education especially among few major donors. This will be discussed more in depth at the latter part of this chapter.

Chart 6. Share of Education ODA Types, South Korea & OECD DAC



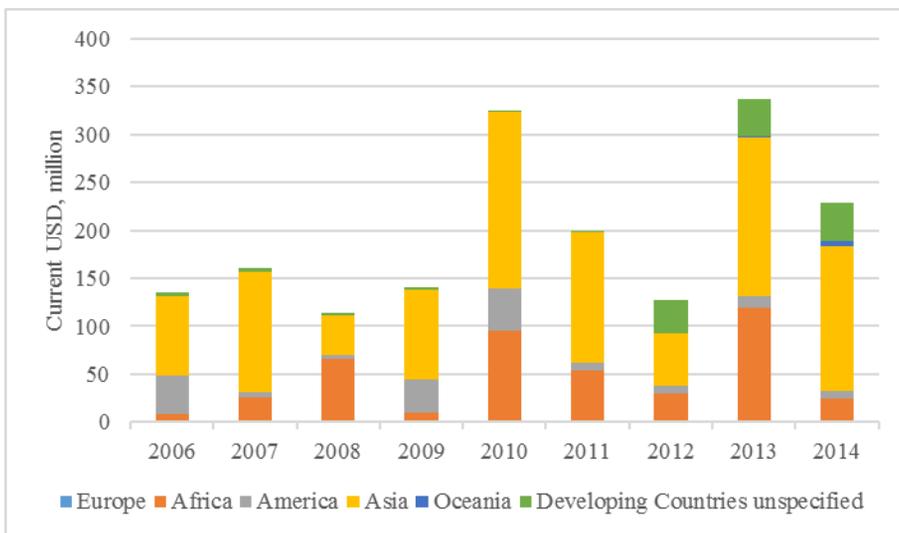
Source: OECD CRS Data (2006-2014), organized by author.

As illustrated in Chart 7, South Korea's education aid is committed to be primarily focused on Asia. Looking closely into the Asia-concentrated aid through Table 3, the top five recipient countries are Vietnam, Uzbekistan, Bangladesh, Iraq and Sri Lanka. These five countries take 34 percent of the total education aid for the period of 2006 to 2014. During the same period, the highest share of education aid directed to Asia is 78 percent in 2007 while the lowest share is in 2012 which is 43 percent. As its destination is not in a steady pattern but differs by particular country and year, it can be carefully predicted that education aid itself is vulnerable to donor's preferences or other variables. Such focused regional distribution can be explained by South Korea's geographical location. Though, it also provides a room to be criticized in the context of favoring commercial interests over genuine poverty alleviation (Marx and Soares, 2013), or perhaps educational needs. To elaborate, Vietnam and Sri Lanka are recognized as rapidly growing economies but not one of the world's most aid-necessary nations. Similarly, high amount of education for Iraq and Afghanistan can be interpreted as motivated-driven desire for Korean strategic security partnership with the United States (Chun et al., 2010).

The second largest group of recipient countries is located in Africa accordingly to Chart 7. The top recipients of education aid of South Korea in Africa are Rwanda, Ethiopia, Cameroon, Angola and Uganda as shown in Table 3. Although the absolute amount of education aid is committed to be taken by Asian countries, commitment to support Africa reaches more than 24 percent of the total aid. Korea appears to continue to diversify the regional distribution of aid. In 2010, the African portion increased more than four times taking the portion of 29 percent which was about seven percent the prior year. This increase can be explained by South Korea's aid

commitment to Africa such as 2006 Initiative for African Development. Moreover, among top ten recipient countries, three African countries (Rwanda, Ethiopia, Cameroon) made it to the list as Table 3 shows. Furthermore, four countries among top ten recipients; Rwanda, Bangladesh, Cambodia and Ethiopia are the least developed countries (LDCs) according to the DAC list of ODA Recipients.⁸ It is hard to notice the underlying motive; whether education aid has been committed to those with educational needs by only examining the top recipient countries. Therefore, the next section will observe in depth into its motives by using different data and indicators after looking at the sub-sectors of education aid in the remaining section.

Chart 7. Regional distribution of Education ODA, South Korea



Source: OECD CRS Data (2006-2014), organized by author.

⁸ Refer to DAC list of ODA Recipients effective for reporting 2012 and 2013 flows.

Table 3. Top 20 recipients of Education ODA of South Korea

Country/Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
Vietnam	3.53	47.55	5.69	12.46	15.64	8.70	3.67	63.87	51.12	424.45
Jordan	0.25	3.28	0.15	0.29	75.64	0.63	0.67	0.66	19.05	201.24
Rwanda	0.09	0.18	4.14	0.24	3.37	1.40	1.39	58.11	6.47	150.79
Uzbekistan	32.03	6.21	1.72	1.72	2.74	5.77	3.37	8.16	10.90	145.24
Bangladesh	0.78	5.07	1.14	40.03	2.03	9.75	4.94	6.72	1.37	143.66
Iraq	3.35	16.60	3.32	9.95	4.26	8.84	5.87	16.75	0.02	137.90
Sri Lanka	10.65	1.17	1.07	1.13	4.93	34.45	3.08	5.52	3.01	130.05
Cambodia	1.12	1.57	1.35	2.02	11.48	4.47	5.03	19.27	7.12	106.85
Ethiopia	0.19	0.55	2.87	0.63	3.09	4.94	11.06	19.44	3.32	92.16
Cameroon	0.03	0.03	35.01	0.09	0.42	0.53	0.42	6.67	0.17	86.73
Mongolia	2.68	2.08	2.33	3.17	9.64	5.70	4.40	5.51	7.18	85.37
Angola	0.00	0.00	0.00	3.25	34.90	0.07	0.15	0.00	0.03	76.82
Myanmar	0.53	2.79	0.58	1.00	5.09	1.86	1.00	1.95	23.59	76.77
Nicaragua	12.60	0.00	0.01	0.01	23.09	0.00	0.02	0.07	0.02	71.64
Philippines	1.04	1.95	1.14	1.32	9.87	2.28	5.95	3.81	7.95	70.62
Colombia	0.02	0.04	0.11	30.13	0.50	0.49	1.22	0.96	0.96	68.88
Uganda	0.00	0.08	0.10	0.01	26.99	5.09	0.52	0.90	0.61	68.62
Guatemala	24.18	0.80	0.16	0.40	3.95	0.74	0.65	0.48	0.40	63.50
Azerbaijan	0.14	0.13	0.17	0.34	0.50	24.66	0.36	4.40	0.15	61.71

Note: All figures are in current million US\$.

Source: OECD CRS Data (2006-2014), organized by author.

3.2. The Sub-sectors of South Korean Education Aid

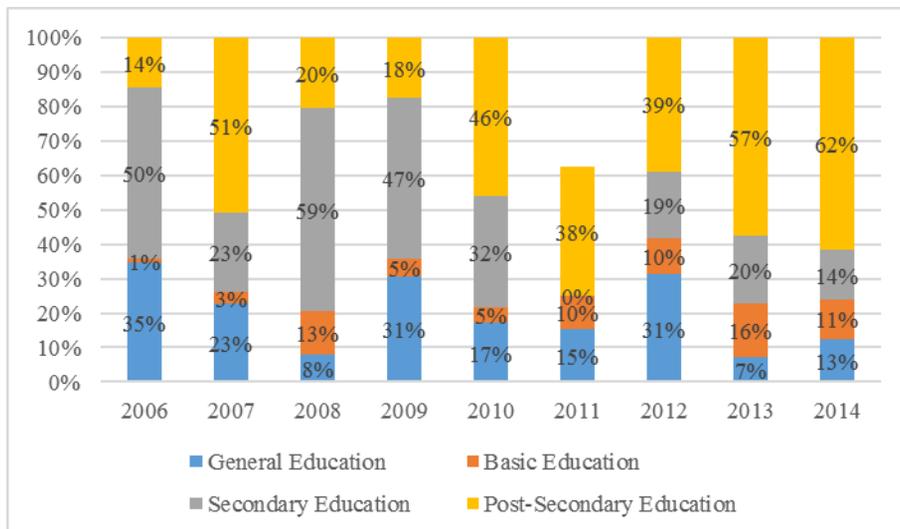
Lastly, this section focuses on the sub-sectors of education aid to closely observe the architecture of South Korean education aid. The sub-sectors of education aid are aligned with the CRS codes; general education (level unspecified), basic education, secondary education, and post-secondary education. Chart 8 illustrates the flow of education aid by its sub-sector of South Korea from year 2006 to 2014. The largest portion committed to education is post-secondary education, secondary education and then to general education. Basic education takes the smallest portion of the total education aid which is notable in chart 8. Compare to the share of OECD DAC countries, South Korea's education aid commitments of all sub-sectors fluctuate every year.

When taking a macro look at the education share flow, aid committed to general education simultaneously increase and decreases each year but eventually decreases to 13 percent in 2014. Aid to basic education seems to gradually increase, but does not exceed 20 percent of the total education aid throughout the decade. Aid to secondary education tends to steadily decrease although it is the second largest share of the total aid. There is intensively a high share of post-secondary education and continues to increase throughout the year. During the period of 2006 to 2014, the share for post-secondary education has quadrupled.

Chart 9 describes the sectoral aid pattern of OECD DAC countries. The largest share also goes to post-secondary education. The portion for general education and secondary education is alike while least aid has been committed to basic education. The education flow for each sub-sector is distributed with a more consistent pattern than South Korea's. However, when examining the absolute amount of each sector,

every sector steadily increases while the share for basic education decreases. The most extreme case is the secondary education sector. It has doubled over the decade, from 604 million dollars USD in 2006 to 1,238 million dollars USD in 2014. Germany and France are known to distribute a large amount of education aid to post-secondary education aid unlike the United States. 40 percent of the entire OECD DAC countries' education aid is from Germany and France's education ODA. Therefore, the study examined the share of basic education excluding these two countries' data. The total share for basic education aid increases up to 46 percent in 2006 and 34 percent in 2014 as anticipated. This result shows that other major donors such as United States, Norway and Netherlands do excel in its support to basic education fulfilling the global priority goal.

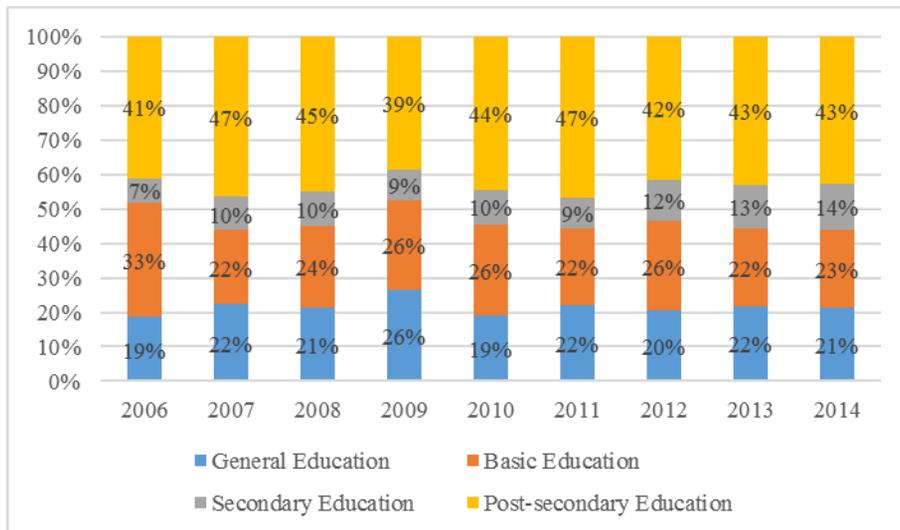
Chart 8. Share of Education ODA by Sub-sector, South Korea



Source: OECD CRS Data (2006-2014), organized by author.

Note that data of secondary education for year 2011 is missing or unreported.

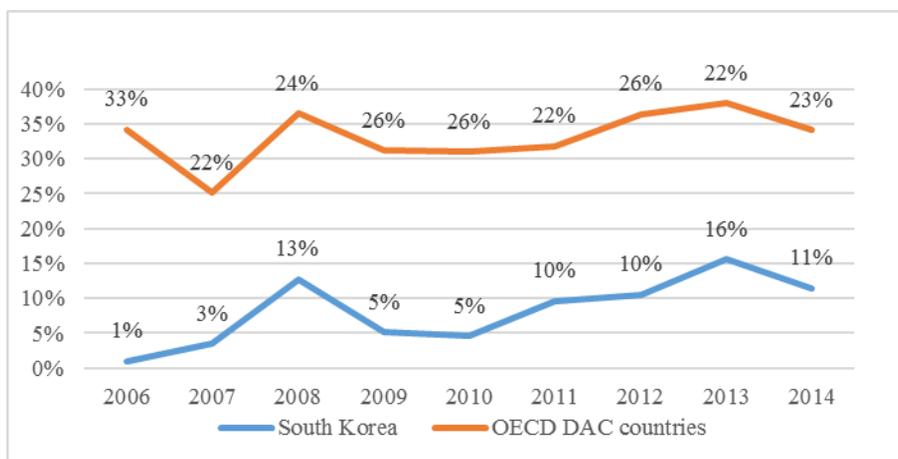
Chart 9. Share of Education ODA by Sub-sector, OECD DAC



Source: OECD CRS Data (2006-2014), organized by author.

The importance of basic education has been emphasized for decades not only by quantity but also by quality. Basic education, as a foundation for education, is the overall content of EFA and education MDGs focus heavily on it. South Korea has also repeatedly expressed their expectations in contributing to basic education under the objective of alleviating poverty. The first goal of KOICA’s Strategy Paper for Education Sector of year 2011 to 2015 is to increase opportunities of basic education for the purpose of providing education to those in need. Despite such glamorous intentions in the basic education sector, the highest share committed to basic education is 16 percent in 2013 while the share is 22 percent for OECD DAC countries (excluding Germany and France) in the identical period. This can be seen in Chart 10. South Korea’s aid to basic education for 2013 is four times larger than the year anterior in absolute amount due to the significant increase of total education aid. However, it decreases again the following year.

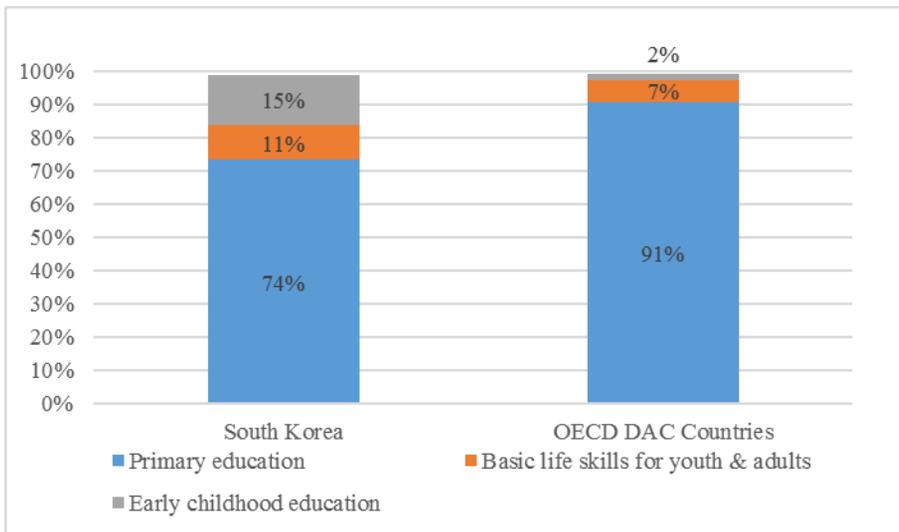
Chart 10. Share to Basic Education by Total ODA, South Korea & OECD DAC



Source: OECD CRS Data (2006-2014), organized by author.

South Korea has committed to distribute basic education aid all in the type of grants. Aid to basic education has mostly been channeled by the public sector showing an average of 76 percent. In this context, it can be predicted that most aid has been implemented by KOICA. However, it is also notable that aids from NGOs and civil society are increasing for basic education from 5 percent in year 2006 to 23 percent in 2014 according to OECD statistics. Moreover, basic education is dedicated to be placed in a project type and is destined to Asia and Africa similar to the total education aid pattern. Basic education, specifically consist primary education, basic like skills of youth and adults, and early childhood education as Chart 11 shows. 74 percent of basic education aid is dedicated to be allocated to primary education for South Korea. 91 percent is committed to primary education for OECD DAC countries. In the context of pro-poor education, it is critical to consider primary education support in the basic education sector.

Chart 11. Share of Sub-Sectors in Basic Education, South Korea & OECD DAC



Source: OECD CRS Data (2006-2014), organized by author.

For the secondary education sector, South Korea has devoted about 30 percent of its total education aid. The largest share to secondary education is in 2008, 59 percent and the lowest share, 14 percent, is in 2014 as demonstrated in Chart 8. For the countries of OECD DAC, no more than 14% percent of the entire education aid has been committed to secondary education. Looking more closely into South Korea's case according to OECD statistics, secondary education aid has been mostly delivered through loans from year the 2006 to 2011. Not until year 2012, secondary education was committed to be all allocated in grants. Similar to basic education aid, aid for secondary education is heavily channeled by public sector. Though it is notable that the share for NGOs and civil society is continuously growing from 1 percent in year 2006 to 13 percent in 2014. An average of 85 percent of aid to secondary education is committed to be project type. The rest of the 15 percent is dedicated to be scholarships and student's costs in donor countries. The destined

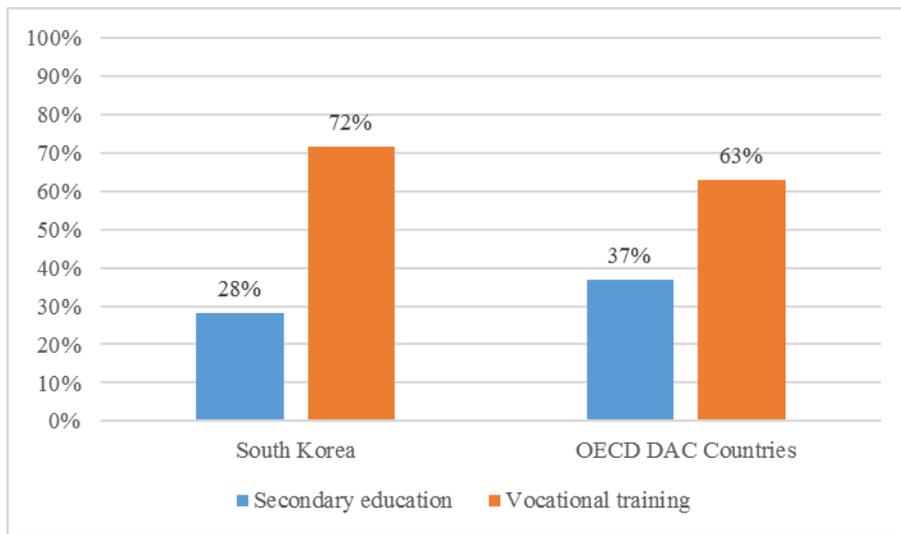
region for this sector is equal to the total education aid which is Asia and then Africa.

South Korea is mentioned in the Education Aid Watch 2015 (Global Campaign for Education, 2015) to be one of the few donors along with World Bank that appears to be “approaching the kinds of increases in aid to secondary education that will be necessary to realize post-2015 commitments on secondary education”. Secondary education sector is considered to be the next important sector to be targeted after basic education. There is a growing need of more support to secondary education as more children have passed through primary education in recent years.⁹

However, it is hard to anticipate whether this aid to secondary education brings such expectation especially for the case of South Korea’s aid commitment. Referring to chart 12, a large share of aid has been dedicated to vocational training than secondary education when taking a closer look at the sub-sectors of secondary education sector. Moreover, secondary education can be better understood as TVET projects in the context of South Korea aid. Hong states in Education Aid Watch 2015 (Global Campaign for Education, 2015), “Korea’s major grant aid agency, KOICA, for instance, has a strong focus on ‘secondary education’, although a working definition of ‘KOICA’s secondary education’ is often understood to be synonymous with technical and vocational education and training (TVET) projects”. Therefore, a majority of aid to secondary education is characterized as vocational training or TVET projects.

⁹ According to Education Aid Watch 2015, “58 million children worldwide are still out of primary school, and tens of millions of those in school are not getting even the most basic education, such as learning to read and write”, despite glamorous accomplishments in primary education aid.

Chart 12. Share of Sub-Sector in Secondary Education, South Korea & OECD DAC

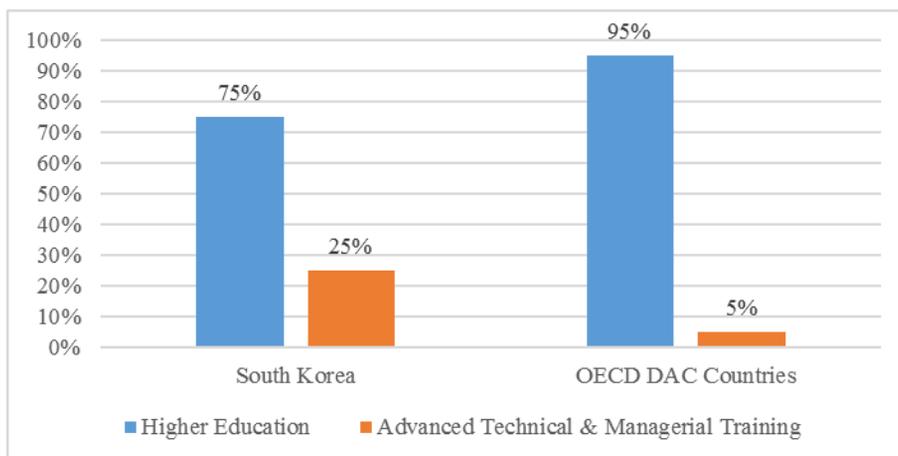


Source: OECD CRS Data (2006-2014), organized by author.

South Korea's focus on vocational training or perhaps TVET is contributed by South Korea's own experience. A number of studies contend that education and human resource development (HRD) strategy are considered to be an important factor of South Korea's significant economic development. To elaborate, qualified skilled workers were effectively provided in time for each stages of South Korea's industrialization through education and training (Chun and Eo, 2012). South Korea holds a tendency to 'handover' such experience to developing countries as a distinctive model by embedding its experiences and ideas in designing and implementing aid. Such TVET projects are usually comprised of establishing training centers, dispatching experts, or providing training or equipment. Its aim is to improve individual productivity and thus increase employability including marginalized youths. At times, it is demanded by developing countries for South Korea to share its peculiar experience.

Lastly, this section looks into the post-secondary education sector. Most of the share committed to education aid goes to post-secondary education sector in South Korea. In the case of OECD DAC countries, an average of 43 percent of education aid is allocated to post-secondary education which is the largest. When two major donors of post-secondary education aid; Germany and France are extracted, the share declines to an average of 18 percent. Therefore, it can be predicted that heavy focus in post-secondary education is not a typical pattern among OECD DAC donors. Intensive focus in post-secondary education for South Korea and top two major countries is due to the large amount of aid committed to higher education. The sub-sectors of post-secondary education are consisted of higher education and advanced technical and managerial training and their share are illustrated in chart 13. In this case, there is barely any difference when removing the share of Germany and France, therefore, the total data has been calculated.

Chart 13. Share of Sub-Sector in Post-Secondary Education, South Korea and OECD DAC



Source: OECD CRS Data (2006-2014), organized by author.

According to Education Aid Watch 2015 (Global Campaign for Education, 2015), aid to post-secondary education can play a vital role in building capacity development in partner countries. Support to post-secondary education can build up national higher educational systems, encourage access of lower-income or exclude students to further education. However, when looking behind the aggregate charts, it becomes clear that aid committed to post-secondary education level is mainly allocated for scholarships and foreign students studying within donor countries.

Looking closely at South Korea's post-secondary education aid commitment, more than half of its aid was to be delivered by loans from year 2006 to 2011. All aid to post-secondary education has been committed to be delivered by grants from 2006. Moreover, more than 95 percent of aid to post-secondary education has been channeled by public sector while its destination is mostly Asia then followed by Africa. An average of 85 percent of aid to post-secondary education is in project type while 15 percent is experts and technical assistance type. The rest of the share which is one percent is calculated to be scholarships and students' costs type in donor's countries.

However, data of South Korea's post-secondary education aid does not seem to accurately report South Korea's current status as Hong in Education Aid Watch 2015 (Global Campaign for Education, 2015) points out and in many other studies. Based on the data most of post-secondary education aid is allocated to higher education by project type and comparing it with projects of KOICA and EDCF, it can be predicted that most of these projects were to be delivered in a form of scholarships. This type of aid should have been calculated in scholarship and students' costs in donor countries type. In the case of OECD DAC countries, the share of scholarship type in

the total post-secondary education aid is an average of 71 percent with a consistent flow throughout the year. The highest share committed to scholarship type is 80 percent; 2,690 million dollars USD in the year 2012. South Korea's aid is overly focused in post-secondary education and especially, in the higher education level which is mostly consisted of scholarship type of projects. Though the data reported by OECD DAC statistics is insufficient to show evidence of this phenomenon.

In the context of educational effect and pro-poor perspective, aid to post-secondary education can be questioned. Such type of aid tends to be allocated to better-off students and may be hard to reach developing countries in need. At times, focus in post-secondary education may even encourage inequity of recipient countries. As again supported by Education Aid Watch 2015 (Global Campaign for Education, 2015), students from low-income families in most of the developing countries barely get any opportunity to receive post-secondary education. Intensive education aid support is still needed for such children through basic and perhaps secondary education.

Throughout the section, it has been analyzed how South Korea's education aid is committed to be distributed while comparing it with that of OECD DAC countries. It was possible to see the general aid architecture and assume the donor's preference. South Korea has its own distinctive experience as a recipient county to a donor country. Through its core experiences and capabilities, it has chosen to 'select and focus' on particular sectors and levels of aid. Moreover, due to lack of a harmonized strategy supported by accurate indicators, South Korea's education aid seems to possess an irregular pattern.

Not all OECD DAC donors flawlessly implement aid accordingly to global

agendas and initiatives. There are parts to improve while some parts are to be learned for all members. Thus, studies and assessments for each country's aid by sector are meant to be significantly important for better aid in the near future. From the next chapter, this study will look into South Korea's education aid to question its determinants. Whether education is allocated to countries with educational needs. Furthermore, a thorough analysis of which indicator mostly affect its aid allocation.

Chapter 4. Analytical Framework and Data

4.1. Hypothesis

Despite the fact that targets need to be set appropriately and aid should be performed accordingly to its promises in order to enhance aid effectiveness, it is hypothesized that South Korea mostly allocates education aid based on donor's interest, not on recipients' needs like many other donors as follows:

H1: Education aid is barely allocated according to recipient countries' educational needs.

H2: South Korea's economic interest most strongly influences the aid allocation of education aid.

4.2. Methodological framework

In order to analyze whether educational needs are reflected in the process of allocating South Korea's educational needs, and if not, which factors most strongly determine it, Tobit-model will be used with variables selected based on the Donor-Interest and Recipient-Need model.

This empirical study is based on Donor Interest-Recipient Need model(DI-RN). As discussed in the literature review of this study, the DI-RN model is heavily used in studies to analyze the allocation and determinants of aid (Berthélemy and Tichit, 2004,; Maizels and Nissanke, 1984; Mckinlay and Little, 1977). More specifically, the combined model of Donor Interest and Recipient Need will help to

examine the two different perspectives of South Korea as a donor over time. All the variables in this study are selected under this model which will be further discussed in Section 4.3.

Empirical studies on aid can also be distinguished by which analytical tools are utilized, as more than one appropriate model for a particular empirical analysis exists. Each model may have its own shortcomings and advantages. In the context of empirical studies on allocation of ODA, the Ordinary Least Squares(OLS) method and Tobit model have been used most frequently. Also, many empirical studies on South Korea's ODA recently used the Tobit model.

The Tobit model will be used as well in the study due to its well recognition to treat the zero value. The Tobit model will help to fully analyze South Korea's education aid allocation despite the large amount of zero value in the dependent variable; South Korea's commitment aid amount to education. Such zero value in the data exists due to lack of reported aid data or no aid at all. The value zero will be treated as no aid committed to recipient countries in the study.

The independent variables which represent various factors of aid allocation, are categorized into four categories: (a) educational recipient need, (b) humanitarian recipient need, (c) economic donor interest, and (d) geological donor interest. Using these categorized variables, the study calculates data in the following order: (a) dataset with only educational factors of all years and countries (b) dataset with all factors of all years and countries (c) dataset of (b) by different educational levels; basic, secondary and post-secondary education level and then (d) dataset of (c) over two different periods for each educational level: period 1(from year 2006 to 2009) and period 2 (from year 2009 to 2014) which is the before and after of South Korea's

transition as an official OECD DAC donor.

To be more specific, calculation (a) will help to analyze whether educational needs determine South Korea's education aid allocation. Calculation (b) will analyze which factors most influence the allocation of education aid. Then examination (c) will be used to analyze the determinants of education aid by each level; basic, secondary and post-secondary education. Lastly, comparison on whether there are any differences between before and after period of South Korea's education aid as an official donor through step (d) will be conducted.

The shortcoming of this study can be that a large share of aid is directed at vocational training for secondary education and scholarships for tertiary education based on the analysis of education aid in Section 3. It may seem to be more accurate to select indicators that directly question the targets and allocation of South Korea's particular secondary and tertiary education's pattern. However, empirical studies by sector are limited in quantity, and studies are further limited when narrowed down to sub-sectors of ODA. There are no preceding studies of such pattern of education aid. Moreover, this type of aid pattern is also questionable.

The main question to this study is whether education aid has been sent to countries with educational recipient need. In this sense, vocational training and higher education definitely are not the first need of recipient countries in the context of pro-poor and global society. Therefore, variables that are certified in the preceding literature will only be used in examining the overall education aid of South Korea.

The equation for the empirical study, the censored regression model (i.e. Tobit model) for panel data with individual specific effects is like the following:

$$y_{it}^* = x_{it}' + \epsilon_{it} = x_{it}' + \mu_i + \nu_{it}$$

Where
$$y_{it}^* = \begin{cases} 0 & \text{if } y_{it}^* \leq 0 \\ y_{it}^* & \text{if } y_{it}^* > 0 \end{cases}$$

Here the subscript $i = 1, \dots, N$ indicates the individual country, subscript $t = 1, \dots, T$ indicates the time period. A time-invariant individual country specific random effect μ_i are i.i.d. $N(0, \sigma_\mu^2)$, the remaining disturbance ν_{it} are i.i.d. $N(0, \sigma_\nu^2)$ independently of μ_i .

For each analysis from (a) to (d), the dependent variable and the set of independent variables are as follows:

(a) analysis of total education aid of South Korea with only educational factors

$$y^* : \text{Ln_Koredu}, \quad x = (\text{Pri, Sec, Ter, Youlit, Adulit, Ratiopri, Ratiosec})'$$

(b) analysis of total education aid of South Korea with all factors

$$y^* : \text{Ln_Koredu}, \\ x = (\text{Pri, Ter, Youlit, Adulit, Ln_Gdp, Inf, Ln_Pop, Ln_Trade, Ln_Dist})'$$

(c) analysis of different education level of aid with all factors

- analysis of aid to basic education with all factors

$$y^* : \text{Ln_Koredup}, \\ x = (\text{Pri, Youlit, Ratiopri, Ln_Gdp, Inf, Ln_Pop, Ln_Trade, In_Dist})'$$

- analysis of aid to secondary education with all factors

ψ^* : Ln_Koredusec,

$\alpha = (\text{Sec}, \text{Youlit}, \text{Ratiosec}, \text{Ln_Gdp}, \text{Inf}, \text{Ln_Pop}, \text{Ln_Trade}, \text{Ln_Dist})'$

- analysis of aid to tertiary education with all factors

ψ^* : Ln_Koreduter,

$\alpha = (\text{Ter}, \text{Ln_Gdp}, \text{Inf}, \text{Ln_Pop}, \text{Ln_Trade}, \text{Ln_Dist})'$

(d) analysis of different education level of education aid for each period

- same as equations of (c)

Further information of the data continues in the following part of the section.

4.3. Data explanation

To analyze the determinants of South Korea's education aid, empirical study will be carried out using bilateral education aid commitments for the period of 2006 to 2014(9 years) of 85 recipient countries. The countries and sample period are chosen based on data availability. There was an extreme lack of data for the education data. Moreover, the type, channel and the flow of ODA will not be considered to see the overall ODA allocation despite the fact that the form of aid may influence the donor behavior.¹⁰

The study uses South Korea's ODA commitments as a dependent variable,

¹⁰ See studies of Feyzioglu et al. 1998; Morrisey et al. 2006 and Djankow et al. 2006 as cited in Farooq, 2012.

which is collected from OECD statistical resource that provides data on ODA commitments by sectoral purpose extracted from the CRS.¹¹ The CRS is an internationally well-known database offering geographical and sectoral breakdown of development aid.¹² ODA commitments are used as the dependent variable to better reflect donor decision as Berthélemy and Tichit(2004) specified that donors have entire control of the commitments while disbursements depend more on the recipients' will and administrative capacity of earning aid.

However, a large part of the CRS database carries missing data or zero variables in the education sector and especially more of them are limited in country level. Farooq (2012) contends that such data signifies that the particular donor has not given any education aid or the donor has provided contributions that have not been reported. There are even cases when aid has been committed to be allocated every year though it has been reported at one time then annually. In this study, this data will be considered as zero education aid.

The independent variables are divided into four categories: educational, humanitarian, economic and geological determinants. The first two categories capture the Recipient-Need approach of aid while the last two relates to Donor-Interest approach of aid. In the case of missing data for the independent variables, data has been filled through other sources or the average number of the data, though there was not much.

¹¹ The OECD defines a commitment as “a firm obligation, expressed in writing and backed by the necessary funds, undertaken by an official donor to provide specified assistance to a recipient country or a multilateral organization”.

¹² See <http://stats.oecd.org/>

The first independent variable category (educational recipient need category) consists of variables that reflect recipient countries' educational needs. First, variables of school enrollment have been chosen: (a) net primary school enrollment, (b) net secondary school enrollment and (c) gross tertiary enrollment. For the literacy rate, (a) youth literacy rate (age between 15 and 24) and (b) adult literacy rate (age 15 and above) have been chosen. For the ratio of pupil-teacher, (a) pupil-teacher ratio in primary education and (b) pupil-teacher ratio in secondary education in headcount basis have been selected.

The primary school enrollment rate is the ratio of number of students enrolled in primary school to number of children of official school age while the secondary school enrollment shows the percentage of the secondary school level. The gross tertiary enrollment rate is the ratio of total enrollment to the population of the age group that officially corresponds to the level of education shown regardless of age. In the case of literacy rate, the youth literacy rate indicates the percentage of people ages 15 to 25 who can, with understanding, read and write whereas adult literacy rate includes people from 15 and above. For the pupil-teacher ratio, both data reflect the average ratio based on headcounts for primary and secondary education.

All educational variables mentioned above best reflect the general education level of the recipient countries and correspond to the aid flow. Moreover, the variables are all used by the international donor community to monitor progress towards the education. Therefore, South Korea's education aid will be estimated using these seven indicators to empirically question whether educational needs have been reflected in the aid allocation process. If Korea intended to enhance the recipient countries' education by allocating education aid, it will likely be that

countries with low education enrollment and literacy rates and high ratio of pupil-teacher education will have received more aid. After looking at which educational variable most influenced the education aid allocation of South Korea, other non-educational variables will be taken into calculation with the below independent variable categories.

The second independent variable category (humanitarian recipient need category) consists of three sub-independent variables: (a) income per capita, (b) infant mortality and (c) population. Apart from recipient countries' particular educational needs, education aid may purely have been allocated to meet the developmental need.¹³ Income per capita shows the economic status of a certain country, therefore, it is the most straightforward indicator to measure recipient need as pointed out in relevant studies (Berthélemy, 2006b; Hoeffler and Outram, 2011; Farooq, 2012). If aid has been allocated accordingly to recipient need, then there should be a negative relationship between education aid and income per capita. Infant mortality is another indicator used to examine recipient need (Berthélemy and Tichit, 2004). The higher the infant mortality rate, the more aid is assumed to be needed. Therefore, it will be likely that countries with high infant mortality rates will have been dedicated with more education aid. Lastly, population is another

¹³ See OECD(2001) for a review of studies on the non-economic benefits of education: Education itself is crucial for attaining development goals by providing the skills and knowledge necessary for the growth and competitiveness of developing countries, education is viewed as not only providing a foundation for sustained economic growth as a lifelong process, but is widely accepted as a fundamental prerequisite for the achievement of economic and human development and is considered as a critical element in meeting basic human needs, and in achieving equity, capacity building, and access to information, research and development (as cited in Farooq, 2012).

frequently used recipient need indicator. The data of population is based on a count of all the residents regardless of legal status or citizenship in the study. More aid will be required for larger developing countries than smaller countries at the same level of development (Maizels and Nissanke, 1984). Therefore, if Korea intended to eradicate the overall poverty and enhance the welfare of recipient countries' by allocating education aid, it is likely that countries with lower income per capita, higher infant mortality rates and population will be allocated with more aid.

The third independent variable category (economic donor interest category) is composed of one variable; trade volume. Trade volume is the total size of trade (import and export) between Korea and each recipient country. Trade volume and FDI (Foreign Direct Investment) are the most frequently used variables in the literature (Berthélemy and Tichit, 2004; and Koo and Kim, 2011). However, only the trade variable has been used in this study as Kim and Oh (2012) state that the trade and FDI frequently have a strong correlation, creating a multicollinearity problem. If the relation between trade volume and education aid is positive, it means that South Korea's education aid is oriented to donor's economical interest.

The fourth independent variable category (geological donor interest category) consists of distance variable. Neumayer (2005) points out that donors tend to give more aid based on geographical proximity in order to maintain a regional sphere of influence (as cited in Farooq, 2012). To accurately capture the donor's geological interest, the study will measure the geographical distance between the donor and the recipient countries' capital. The study is likely to show that more aid is allocated to closer neighbors.

For all the independent variables, one year has been lagged in the estimation

in order to withdraw more precise analysis. This is due to the fact that the decision process of aid allocation is done prior to or at the commencement of a year (Farooq, 2012). Also, the variables for GDP, population, trade and distance are in a logarithmic form. Logarithmic form help to create the data more into a normal distribution and has advantages such as reducing significant influence of large values in the estimation.

The following Table 4 organizes all the data used in the study:

Table 4. Variable Explanation

Dependent Variable	Code	Definition	Source
South Korea's Education Aid	Ln_Koredu	Commitment amount of all types of aid from Korea to 85 recipient countries in Education Sector from year 2006 to 2014	CRS, OECD Statistics
Recipient Educational Need	Pri	Ratio of number of students enrolled in primary school to number of children of official school age(net enrollment)	World Development Index & UIS. Stat. (UNESCO)
	Sec	Ratio of number of students enrolled in secondary school to number of children of official school age(net enrollment)	
	Ter	Ratio of total enrollment to the population of the age group that officially corresponds to the level of education shown regardless of age(gross enrollment)	
	Youlit	Percentage of people ages 15 to 25 who can, with understanding, read and write	
	Adulit	Percentage of people ages from 15 and above who can, with understanding, read and write	
	Ratiopri	Ratio of pupil-teacher in primary education(headcount basis)	
	Ratiosec	Ratio of pupil-teacher in secondary education(headcount basis)	
Recipient Humanitarian Need	Ln_Gdp	GDP per capita is gross domestic product divided by midyear population.	World Development Index
	Inf	Infant mortality rate is the number of infants dying before reaching one year of age, per 1,000 live births in a given year.	
	Ln_Pop	Total population is based on counts all residents regardless of legal status or citizenship	
Donor Economic Interest	Ln_Trade	Total export and import amount between Korea and each recipient	ComTrade
Donor Geological Interest	Ln_Dist	Geological distance between Korea and each recipient	MapCrow

Chapter 5. Results

This section aims to show the empirical results of South Korea's education aid allocation. First of all, Table 5 shows the results of which educational recipient need have influence over South Korea's education aid allocation. Net enrollment of primary education, gross enrollment of tertiary education and literacy rate of youth and adult are statistically significant factors.

The coefficient of the variables of enrollment rate of primary education and tertiary education and youth literacy rate are significantly positive. In case of net enrollment of secondary education, the coefficient is negative but not significant at any prevailing level of significance while adult literacy rate is significantly negative at 1 per cent level. Adult literacy rate is the only factor that fits the educational need of recipient countries as more education aid has been allocated to countries with lower rate of adult literacy.

According to the results, it can be partially explained that most of South Korea's education aid is allocated to countries with better educational environment. This may be to bring synergy effect as most of South Korea's education aid targets to secondary and tertiary education. However, the limitation is that not all variables show a consistent pattern leaving room to question its effectiveness. Therefore, it can be proposed that South Korea's education aid is barely allocated according to recipient countries' educational needs as hypothesized.

Table 5. Empirical Results of Educational Determinants of Total Education ODA

Category	Variable	Total education aid
Recipient Educational Need	Pri	0.281*** (0.044)
	Sec	-0.478 (0.028)
	Ter	0.077** (0.257)
	Youlit	0.150* (0.061)
	Adulit	-0.193*** (0.051)
	Ratiopri	-0.005 (0.470)
	Ratiosec	0.045 (0.053)
	Constant	-9.569* (3.895)
Observations		679
Left-censored observations		143
Rho		0.013

*, **, *** Significant at the 10%, 5%, 1% level respectively.

The above education-related variables statistically significant are analyzed with other non-educational factors as Table 6 elaborates. This is to find out which factors matter in the allocation of education aid. Net enrollment rate of primary education and literacy rate for youth and adults in the recipient educational need category are evident to be statistically significant. This pattern is consistent with the prior examination except for the gross enrollment rate of tertiary education.

In the recipient humanitarian need category, GDP per capita and population show significant impact on South Korea's education aid allocation. More aid is committed to countries with lower GDP per capita and larger population.

Continuously, donor's economic and geological interests significantly show positive impact on South Korea's education aid allocation as more aid is dedicated to countries with larger amount of trade and closer countries in distance.

The empirical results provide an overall view of the determining factors of South Korea's education aid allocation. As preceding literature, South Korea's aid to education sector reflect both donor-interest and recipient need. There is evidence that education aid is allocated to where education is needed. However, when comparing it with other factors, it is hard to say recipient educational need was a priority in the process of aid allocation. Instead, GDP per capita, population and trade volume are more influential determinants than educational needs of the recipient countries. Based on the reported estimation in Table 6, it can be suggested that GDP per capita, population size and trade volume play a significant role in allocating South Korea's education aid.

It is not easy to support this study's finding in detail since there are no other researches that closely analyze the determinants of South Korea's education aid but rather focus on South Korea's total aid including all sectors. However, the finding results do correspond to the preceding studies of South Korea's total ODA which imply that there is not much difference between the entire ODA and education aid itself.

Table 6. Empirical Results of Determinants of Total Education ODA

Category	Variable	Total Education Aid
Recipient Educational Need	Pri	0.157*** (0.034)
	Ter	0.022 (0.021)
	Youlit	0.126* (0.050)
	Adulit	-0.116** (0.041)
Recipient Humanitarian Need	Ln_Gdp	-2.770*** (0.492)
	Inf	-0.022 (0.020)
	Ln_Pop	1.597*** (0.307)
Donor Economic Interest	Ln_Trade	1.085*** (0.223)
Donor Geological Interest	Ln_Dist	-0.000** (0.000)
	Constant	-25.869*** (5.657)
Observations	680	
Left-censored observations	143	
Rho	0.033	

*, **, *** Significant at the 10%, 5%, 1% level respectively.

In order to take a closer look at the determining factors; aid is once again analyzed by different education levels. The variables of non-educational variables are identical as the analyses above while variables for recipient educational need are selected appropriately to each education level.

Table 7 presents the determinants of South Korea's aid allocation to basic education. In the recipient educational need category, net enrollment rate of primary

education is statistically significant. Aligning with prior results, it is notable that South Korea allocates more aid to partners with higher enrolment rate of primary education. When taking a closer look at the purpose of aid, statistical data and the empirical findings of the study in the basic education sector, questions can be raised. This is because aid distribution and the empirical analysis of the allocation do not align with the purpose of basic education aid. This argument can be further supported below.

Most of South Korea's basic education is targeted to primary education as it is analyzed in chapter 3. It can be predicted that the majority of basic education aid is delivered through KOICA when considering basic education aid is delivered mostly in grants from the public sector in project types. Various reports published by KOICA indicate that basic education aid projects aim to enhance the quality and quantity of basic education where it is needed. However, the statistics show that KOICA's basic education aid projects are highly consisted of 'hardware' projects such as reconstruction of education-related infrastructures. Furthermore, the empirical findings in this study imply that these types of education projects are directed to countries with higher enrollment rates. Therefore, it can be argued that South Korea's basic education aid is not allocated to countries with educational needs.

Moreover, all the variables in the humanitarian need category are proven to be statistically significant. The coefficient of the recipient's' GDP per capita and infant mortality is significantly negative while the population variable is positive. The variable of the trade volume is positively significant at 5 percent level of significance. Based on the findings, it is possible to indicate that South Korea gives

more aid to partners with lower GDP per capita, larger population meeting the recipients' humanitarian need. However, South Korea's also gives more aid to countries with higher infant mortality rate and larger trade volume. Interestingly, basic education aid did not have any statistical relationship with donor geological interest.

The empirical results of aid allocation of basic education are in align with previous analyses in the context of donor interest and recipient need approach. However, when questioning its educational need, empirical results indicate that educational need of partner countries is hardly considered in the process of allocating basic education aid. In the basic education sector, South Korea's aid can be concluded that it is allocated to countries with lower GDP and larger population but also to countries with higher primary enrollment rate and larger trade volume between partner countries.

Table 7. Empirical Results of Determinants of Basic Education ODA

Category	Variable	Basic Education Aid
Recipient Educational Need	Pri	0.223** (0.071)
	Youlit	-0.007 (0.059)
	Ratiopri	0.030 (0.062)
Recipient Humanitarian Need	Ln_Gdp	-7.759*** (1.099)
	Inf	-0.0955* (0.043)
	Ln_Pop	1.391* (0.648)
Donor Economic Interest	Ln_Trade	1.549** (0.473)
Donor Geological Interest	Ln_Dist	-0.000 (0.000)
	Constant	-8.664 (12.163)
Observations		680
Left-censored observations		391
Rho		0.029

*, **, *** Significant at the 10%, 5%, 1% level respectively.

Table 8 illustrates the results of aid allocation particularly in the secondary level. In the recipient educational need category, youth literacy rate is the only variable that is statistically significant with a positive correlation. More aid is allocated to countries with higher net enrollment rate of secondary education. This can be explainable when considering the characteristics of South Korea's secondary education aid.

As mentioned in chapter 3, a large share of aid is dedicated to vocational training in the secondary education sector. It has also been indicated that such vocational training is better understood as technical and vocational education and

training (TVET) projects. In this sense, it would be harder to find significant determinants of secondary education aid allocation of South Korea as aid aiming for TVET is hardly allocated based on cohesive indicators or targets. Moreover, there is a higher tendency of enrollment rate of secondary education and ratio of teacher and pupil not considered in the process of such aid allocation. Though, youth literacy may matter in the context of aid for vocational training. South Korea aims to provide training opportunities to improve individual's' productivity and increase employability (Chun and Eo, 2012). In order to realize or perhaps maximize such training effect, aid for TVET would be allocated to targets who have basic knowledge; to people who can, with understanding, read and write. Therefore, youth literacy rate can be indicated as one of the determinants of South Korea's secondary education aid.

In the recipient humanitarian need category, GDP per capita and infant mortality rate are statistically significant with a negative correlation. This indicates that South Korea gives more secondary education aid to countries with lower GDP per capital and higher infant mortality rate which is a contradictory result. In the donor economic and geological interest categories, both variables are statistically significant. Secondary education aid is committed more to countries with larger trade volume and closer in distance.

The empirical analysis of secondary education aid is similar to the examination results of basic education aid expect that the population variable did not have any influence over the allocation process while distance variable did. When questioning its educational need, estimates show that educational need of recipients is barely considered in the process of allocating secondary education aid. Therefore,

it can be concluded that South Korea's secondary education aid is allocated to countries with lower GDP but also to higher youth literacy rate, higher infant mortality rate, higher trade volume and more neighboring countries.

Table 8. Empirical Results of Determinants of Secondary Education ODA

Category	Variable	Secondary Education Aid
	Sec	-0.083 (0.043)
Recipient Educational Need	Youlit	0.175** (0.059)
	Ratiosec	-0.053 (0.074)
	Ln_Gdp	-5.328*** (1.062)
Recipient Humanitarian Need	Inf	-0.114** (0.044)
	Ln_Pop	1.132 (0.608)
Donor Economic Interest	Ln_Trade	1.874*** (0.461)
Donor Geological Interest	Ln_Dist	-0.000** (0.000)
	Constant	-16.441 (11.366)
Observations	679	
Left-censored observations	413	
Rho	0.024	

*, **, *** Significant at the 10%, 5%, 1% level respectively.

The study again looks at aid committed to tertiary education level. In the tertiary education sector, gross enrollment rate of tertiary education is used to reflect the recipient educational need. As Table 9 elaborates, all the variables are statistically significant except for the recipient educational need factor. Statistically significant evidence has not been found in the recipient educational need category. However, in the humanitarian recipient need category, it shows that South Korea

gives less aid to countries with higher GDP per capita and larger population. For the donor economic interest category, the trade variable explains that more aid is allocated to countries with larger trade volume. Lastly, the variable in the last category shows that more aid is committed to countries that are geologically closer to South Korea.

The empirical findings of tertiary education can be explainable when considering the characteristics of South Korea's aid flow. As elaborated in chapter 3, South Korea's tertiary aid is mostly consisted of scholarship programs. Similar to TVET, there are no cohesive targets or outline of indicators in allocating scholarship-related ODA and aid itself is inconsistent throughout the period. Moreover, it was not possible to find certified variables to estimate the determinants of such education aid in the preceding literature. However, it will be possible to explain the positive correlation of the enrollment rate of tertiary education in the empirical results although it is not statistically significant.

As scholarship programs aim to support foreign students in donor countries, aid would be targeted to countries with better level of tertiary education as it would be easier to develop and undertake such programs. Therefore, it can be concluded that South Korea gives tertiary education aid to countries with lower GDP per capita, higher infant mortality rate, larger population, larger trade volume and closer countries from South Korea reflecting both donor interest and recipient need. Lastly, when questioning its educational need, evidence show that educational need of recipient countries is rarely considered in the process of allocating tertiary education aid.

Table 9. Empirical Results of Determinants of Tertiary Education ODA

Category	Variable	Tertiary Education Aid
Recipient Educational Need	Ter	0.008 (0.193)
	Ln_Gdp	-1.682*** (0.452)
Recipient Humanitarian Need	Inf	-0.834*** (0.016)
	Ln_Pop	1.454*** (0.285)
Donor Economic Interest	Ln_Trade	0.812*** (0.208)
Donor Geological Interest	Ln_Dist	-0.000*** (0.000)
	Constant	-13.250** (4.419)
Observations	680	
Left-censored observations	213	
Rho	0.061	

*, **, *** Significant at the 10%, 5%, 1% level respectively.

To be more precise, the study examines each level of education aid into two different periods. The first period is from year 2006 to 2009 while the latter period is from 2010 to 2014. The period is distinguished by the transition of OECD DAC donor country of South Korea in 2009. Most of the statistical results show similar patterns between the two periods except for the recipient educational need factors. The recipient educational need factors become statistically significant in period 2 for aid to primary and secondary education sector. Aid to tertiary education does not show any statistical significant relationship with recipient educational need as already implied in the previous analysis.

According to Table 10, GDP per capita, infant mortality rate and trade

volume are the three major determinants that are statistically significant in period 1. Less aid is dedicated to countries with higher GDP per capita and infant mortality rate while more aid is to be allocated to countries with larger trade volume. When looking at the analysis of period 2, same factors show statistical significance except for infant mortality rate. Instead, the determinant of net enrollment rate for primary education in the recipient educational need category appears to be statistically significant with a positive correlation.

Based on the empirical analysis, GDP per capita and trade volume are both strong determining factors in the process of aid allocation of basic education throughout the two periods. For aid aiming at basic education, both donor-interest and recipient need are considered; the former is explained by trade volume while the latter is supported by GDP per capita. Moreover, as the educational recipient need factor, the net enrollment rate of primary education shows statistical significance in period 2, it can be said that the influence of educational determinants has been developed only after South Korea became an official ODA donor.

Table 10. Empirical Results of Determinants of Basic Education ODA by Period

Variable	Period 1	Period 2
Pri	0.135 (0.132)	0.249** (0.083)
Youlit	-0.018 (0.116)	0.020 (0.069)
Ratiopri	0.051 (0.113)	0.022 (0.075)
Ln_Gdp	-7.202*** (1.945)	-8.094*** (1.330)
Inf	-0.172* (0.082)	-0.046 (0.052)
Ln_Pop	1.499 (1.216)	1.311 (0.756)
Ln_Trade	2.126* (0.877)	1.294* (0.561)
Ln_Dist	-0.000 (0.000)	0.000 (0.000)
Constant	22.689 (-0.64)	-5.812 (14.144)
Observations	255	425
Left-censored observations	162	229
Rho	0.010	2.750

*, **, *** Significant at the 10%, 5%, 1% level respectively.

Table 11 shows the empirical results of determinants of secondary education aid allocation for period 1 and 2. Based on the empirical results in Table 11, GDP per capita, infant mortality rate, trade volume and distance are the four determinants that are statistically significant in period 1. More aid is dedicated to countries with lower GDP per capita and closer countries while more aid is allocated to recipients with higher infant mortality rate and trade volume.

In period 2, GDP per capita and trade volume remain to be statistically significant factors. Youth literacy rate is statistically significant; implying more aid

which is allocated to countries with higher youth literacy rate. This is similar to the results of basic education as educational recipient need factor is developed to be a significant determinant only after period 1. Moreover, while more aid is committed to countries with higher infant mortality and to closer countries in period 1, these two factors did not have any statistical significance in period 2. In short, secondary education aid can be concluded that it is committed to countries with lower GDP per capita, larger trade volume and higher literacy rate of youth especially from period 2.

Table 11. Empirical Results of Determinants of Secondary Education ODA by Period

Variable	Period 1	Period 2
Sec	-0.102 (0.079)	-0.068 (0.052)
Youlit	0.027 (0.106)	0.256*** (0.717)
Ratiosec	-0.123 (0.138)	-0.050 (0.088)
Ln_Gdp	-6.344** (1.955)	-5.515*** (1.277)
Inf	-0.224** (0.082)	-0.050 (0.053)
Ln_Pop	0.523 (1.151)	1.182 (0.708)
Ln_Trade	2.356** (0.848)	1.837** (0.551)
Ln_Dist	-0.000** (0.000)	-0.000 (0.000)
Constant	11.769 (22.473)	-25.611* (12.995)
Observations	255	424
Left-censored observations	171	242
Rho	2.78	0.013

*, **, *** Significant at the 10%, 5%, 1% level respectively.

Lastly, Table 12 presents estimation results of aid to tertiary education for period 1 and 2. For both periods, tertiary enrolment rates do not show any statistical significance. Other factors including recipient humanitarian need, donor economic and geological interests all show identical patterns to the previous analyses of aid to tertiary education for both periods. More aid is allocated to countries with larger population and trade volume while less aid is committed to recipients with lower GDP per capita, higher infant mortality rate and more neighboring countries. Unlike aid to primary and secondary education, it is noted that aid to tertiary education does not show notable differences in the aid allocation pattern for period 1 and 2.

Table 12. Empirical Results of Determinants of Tertiary Education ODA by Period

Variable	Period 1	Period 2
Ter	0.023 (0.032)	0.006 (0.023)
Ln_Gdp	-1.716* (0.717)	-1.593** (0.575)
Inf	-0.076** (0.026)	-0.079*** (0.021)
Ln_Pop	1.114* (0.466)	1.676*** (0.358)
Ln_Trade	1.223*** (0.332)	0.522* (0.265)
Ln_Dist	-0.000* (0.000)	-0.000*** (0.000)
Constant	-16.646* (7.112)	-11.367* (5.587)
Observations	255	425
Left-censored observations	85	128
Rho	1.78	0.093

*, **, *** Significant at the 10%, 5%, 1% level respectively.

According to the empirical finding in this chapter, it can be concluded that South Korea's aid allocation is barely determined by the recipient's' educational need. As hypothesized, its education aid is allocated strongly by donor's economic and geological interest. However, it is also interesting to note that recipient's humanitarian need is considered in the process of aid allocation, especially GDP per capita.

Chapter 6. Conclusion

This study is an attempt to find determinants of South Korea's education aid allocation. It first discusses which recipients' educational needs are taken into account in the process of allocating education aid. Then, the study explores its determinants with other factors of donor-interest and recipient need by particular educational level and periods. As mentioned in the earlier section, there is very few studies that analyze aid allocation by country and sector. When it comes to literature on South Korea, it is even more limited due to its short period of being a donor. Therefore, this study strived to undertake empirical analysis by using the most convincing methodology and data closely based on preceding literature. In this sense, this study can contribute to the literature gap especially for South Korea's ODA and particularly the education sector.

The study has looked into South Korea's education aid commitment for 85 recipient countries from 2006 to 2014. In order to examine various factors based on donor-interest and recipient need, twelve independent variables have been cautiously selected. First, there is evidence that educational need is taken considered in the process of allocation of education aid especially for the adult literacy rate. More aid has been allocated to recipient countries with lower adult literacy rate when examining education aid only with the educational factors. However, other determinants of educational recipient need did not have any appropriate coefficient relationship with South Korea's education aid.

Secondly, there are various factors determining the education aid allocation

of South Korea. When looking at the humanitarian recipient need category, more aid has been dedicated to countries with lower GDP per capita and larger population implying that more support has been committed in the context of pro-poor. However, trade volume and distance also show strong links in determining aid allocation. This is supported by empirical analysis that shows education aid increasing to countries with stronger trade relations with South Korea and to countries that are geologically closer.

When aid allocation is analyzed by different education levels and periods, the empirical findings rather show a consistent pattern. For aid to basic and secondary education, more aid is allocated to countries with higher enrollment rate whereas aid for tertiary education does not show any statistical significance. This pattern becomes more significant in period 2 meaning educational determinants have only been developed after South Korea became an official donor. In the pro-poor context, all aid is determined by GDP per capita implying that more aid is committed to countries with lower economic affluence. However, the trade volume also indicates to be a strong determinant in the process of allocating education aid which is a contradictory motivation. The size of population and infant mortality rate in the recipient humanitarian need category and distance variable in the donor geological interest category also demonstrate statistically significant findings but show minor differences by each education level and period.

Various lessons could be learned and pointed out in the study. South Korea's education aid allocation is determined both by both donor-interest and recipient need factors. There is evidence that educational recipient need is considered in the allocation process. However, non-education related factors, especially the

donor economic interest factor (trade volume) and humanitarian recipient need factor (GDP per capita) show to have the strongest influence over South Korea's education aid allocation. This pattern is clearly observable in all the empirical analyses carried out in the study.

Such patterns of allocation and determinants can be explained by the absence of harmonized target or clear outline of indicators to consider when allocating education aid. Also, South Korea's inconsistent aid allocation behavior throughout the sector and year compared to international aid architecture can also explicate the study's results. Based on the results provided by this study, it is sufficient to question South Korea's education aid allocation to be effective especially in the context of recipient's educational need.

Therefore, it is time for South Korea to access its aid allocation pattern and focus in improving harmonization of aid allocation by targeting appropriately.

Future studies can be continued in various ways. First, it will be interesting to compare aid determinants of education aid of South Korea and those of OECD DAC countries. Secondly, South Korea's education aid allocation could be more deeply examined when analyzing the differences between ODA type, flow, channel, recipients' regional destination and income level based on OECD DAC's recipient list. Most importantly, the third probability of intensifying this study is to examine South Korea's education aid allocation for post-MDGs and SDGs. Not even a decade has passed since South Korea has become a donor. Therefore, it may be too early to access and make firm conclusions of its behavior. A future study by comparing South Korea's aid behavior with data up to 2015 and also examining it again after 2030 will be an interesting study to be.

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Appendix A. Member Countries of the OECD Development Assistance Committee

1	Austria	15	Ireland
2	Belgium	16	Luxembourg
3	Denmark	17	Greece
4	France	18	Spain
5	Germany	19	Slovenia
6	Italy	20	Czech Republic
7	Netherlands	21	Slovak Republic
8	Norway	22	Poland
9	Portugal	23	Canada
10	Sweden	24	United States
11	Switzerland	25	Japan
12	United Kingdom	26	Korea
13	Finland	27	Australia
14	Iceland	28	New Zealand

국문초록

한국 교육 ODA의 결정요인

전민정

서울대학교 사범대학원

글로벌교육협력 전공

논문의 목적은 한국의 교육 ODA를 실증 분석하여 원조 배분에 영향을 미치는 결정요인이 무엇인지 알아보는데 있다. 무엇보다 한국이 2006년부터 2014년까지 85개 개발도상국에 배분한 교육 ODA는 필요한 나라에 배분되었는지 알아보고 더 나아가 어떤 결정 요인에 의해서 영향을 가장 많이 받았는지 분석하고자 한다.

이를 위해, 본 연구는 공여국의 이해 및 수원국의 필요 모델을 기반으로 13개의 변수를 설정하였다. 해당 변수는 4가지 측면인 교육적, 인도주의적, 경제적 및 지리적 요인으로 나누어 분석하였고 분석 모형은 토빗모형을 활용하였다. 이와 같은 분석방법을 통해 한국의 교육 ODA가 수혜국의 교육적 또는 인도주의적 필요에 의하여 배분되었는지 또는 공여국의 경제적 또는 지리적 이해를 위하여 배분되었는지 분석하고자 한다.

분석을 실시한 결과, 한국 교육 ODA의 배분은 특정한 요인의 절대적인 영향을 받는 것이 아니라 4 가지 측면의 다양한 요인으로 결정되는 것으로 보인다. 한국

교육 ODA 배분에 수혜국의 교육적인 요인이 영향을 미치는 것으로 나타나지만 성인 문해율만 정(-)의 방향으로 유의하였고, 초등 및 고등등록률과 청소년 문해율은 부(-)의 방향으로 유의한 것으로 나타났다. 교육 ODA는 인도주의적 요인 측면에서 살펴보면, 1인당 GDP와 성인문해율과는 반비례하고 인구수와는 비례하는 것으로 보인다. 또한, 경제적 및 지리적 요인과는 양자간 수출입규모와는 비례하고 지리적 거리와는 반비례하는 것으로 보인다.

이러한 양상은 한국 교육 ODA를 교육 수준별 및 시기별로 세분화하여 분석할수록 뚜렷해지는 것으로 나타난다. 본 연구에서는 교육 수준을 초등, 중등 및 고등교육으로 세분화하였고 시기는 한국이 OECD DAC 공여국으로서 전환한 전후 시점을 기준으로 하였다. 한국의 고등교육 ODA를 제외하고, 앞서 분석된 한국 교육 ODA의 교육적 결정요인의 양상은 한국이 공여국으로 전환된 이후에 보이는 것으로 나타난다. 그 외 요인들은 교육 수준 및 시기와 관계없이 일관된 양상을 보인다. 가장 뚜렷한 일관성을 보이는 요인은 수혜국의 1인당 GDP와 양자간 수출입규모이다. 본 연구를 통해, 한국 교육 ODA는 다양한 요인에 의하여 배분이 결정되지만 그 중 경제적 이익(양자간 수출입 규모)과 인도주의적 요인(1인당 GDP)이 가장 많은 영향을 미치는 것으로 볼 수 있을 것이다.

본 연구의 한계점은 한국의 교육 원조 체계가 불완전하다는 것이다. 한국이 교육 ODA를 수행하는데 앞서 원조 분배를 결정하고 모니터링의 역할을 수행할 컨트롤 타워 또는 일관된 지표가 없어 연도별, 분야별, 타입 별로 다양한 모습을 보여주고 있다. 그럼에도 불구하고, 한국은 국제사회의 논의에 따라 원조 효과성을 높이고 효율적인 운영체제를 구성해야한다는 문제의식에 동의하고 다양한 노력들을

행하고 있다. 한국이 공여국으로서 공여 활동을 펼치기 시작한지 십년도 지나지 않은 시점에서 한국 교육 ODA를 평가하고 한마디로 결론 내리기에는 이른 감이 있다.

이런 맥락에서, 향후 한국이 더 효과적인 교육 ODA를 수행하기 위해 더 많은 연구 분석이 이루어져야 할 것이다. 추후, 한국의 교육 ODA를 다양한 종류와 형태별로 분석 및 비교하거나, OECD DAC의 국가들과 비교 분석해보면 더 깊이 있는 분석이 될 수 있을 것이라고 생각한다.

주요어: 한국 ODA, ODA, 교육 원조, 한국 교육 원조, 원조 배분, 원조 결정요인

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