

**WHY HELP NORTH KOREA? : AN EMPIRICAL ANALYSIS OF DETERMINANTS OF
FOREIGN ASSISTANCE TO NORTH KOREA, 2001-2013**

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ABSTRACT

In the early 1990s, a series of events including the collapse of Soviet Union and discord between North Korea and China shocked the North Korean economy. Moreover, its dysfunctional economy was hit by the Great Famine in the mid-1990s, leaving the North Korean regime little choice but to solicit assistance from international community. Since then, foreign aid played a major role in the North Korean economy and society. Especially, in the context of economic sanctions against North Korea due to its nuclear program and dwindling South Korea's economic cooperation with North Korea, foreign assistance became even more important for the North Korean regime. However, North Korea, as a recipient country, has been taken as a "difficult" country due to its unwillingness to cooperate with donor countries and international organizations while most recipients welcome donors to get more aid. Moreover, there has been a growing concern among donors that foreign aid can help the North Korean regime, not ordinary people, survive, causing tensions among them. This paper investigates rationales and characteristics of official development assistance (ODA) to North Korea. It takes a closer look at major donors' aid to North Korea from 1995 to 2012 by using the data from OECD's Creditor Reporting System. Specifically, it disaggregates aid into development and humanitarian aid to see if aid policies and implementation by various donors have converged or diverged over time and what types of aid have contributed to the North Korean economy. Moreover, it compares advanced donors' aid with Chinese aid to North Korea to better understand the North Korean regime's motivations and behavioral patterns with regard to foreign assistance. This paper contributes to the existing literature by taking into account donors' motivations to provide aid to North Korea as well as North Korean incentives to receive it.

Introduction

The Democratic People's Republic of Korea (DPRK, or North Korea) celebrated its becoming "*Kangsŏng Daeguk* (强盛大國, Strong and Prosperous Great Country)" in 2012, the 100th anniversary of Kim Il Sung's birth. However, Kim Jong Un's succession as the Hermit Kingdom's supreme leader after the death of Kim Jong Il in December 2011 bode ill for the already dysfunctional economy not to mention the lackluster *Kangsŏng Daeguk*. Despite the expectation that the young and inexperienced Kim would have much difficulty in consolidating his power and reviving a dying economy (Joo, 2012), it seems that Kim Jong Un survived

political challenges and the country muddled through economic hardships. It is believed that foreign assistance to North Korea considerably helped its regime survive.

While foreign assistance to North Korea has been a key component in the North Korean economy ever since its establishment, it was a series of events in the 1990s—such as the Great Famine and discontinued assistance from its communist allies—that left little choice for North Korea, “Hermit Kingdom,” to solicit assistance from the international community other than China and Russia. In 1995, international community first began to provide official development assistance (ODA) to North Korea and the total amount during the period of 1995~2013 was almost 1.9 billion USD. From the perspective of donors, however, North Korea has been taken as a “difficult” recipient in a sense that, unlike other recipients that are willing to cooperate with donors in order to receive more aid, North Korea has been cooperative only reluctantly, restricting foreign donors’ access to those in needy and causing donors’ aid fatigue (Flake, 2004; Park, 2009). Moreover, assistance to North Korea posed a dilemma for donors because it could help the North Korean regime, instead of North Korean people, that is responsible for the famine, hunger, and economic difficulties (Haggard & Noland, 2005).

Despite the ups and downs of ODA amount, it played a significant role in sustaining dysfunctional economy. Moreover, the importance of foreign assistance to North Korea grew in the context of nuclear and missile crises followed by economic sanction, military first policy, discontinued economic cooperation between the two Koreas since 2010. Foreign aid to North Korea, according to a scholar, enhanced persistence of North Korean regime and its survivability during some critical periods (Eberstadt, 2004).

Interestingly, there exist great variations across time as well as donors in terms of aid amount to North Korea (Jung, Park, & Lee, 2015). For instance, some donors did not give a dime to North Korea for most years, others consistently provided aid to the country. What determines donor countries’ decision to provide aid to North Korea? This paper explores the reason why. Many studies help us better understand the key characteristics of foreign assistance to North Korea and politics involved in it (Haggard & Noland, 2005; J. Kim, 2014). Others suggest how to enhance aid effectiveness in North Korea (Flake, 2004). While these works deepen our understanding of foreign aid to North Korea, there has been few empirical research on the determinants of ODA.

This paper finds that North Korea’s domestic economic situation and external economic relations—foreign direct investment (FDI) inflows, Sino-DPRK trade, and South Korea’s assistance—affect donors’ aid to North Korea. First, higher North Korea’s GDP growth rates negatively affect donors’ aid, implying that donors take into account North Korea’s economic condition when allocating their aid. Second, while, as expected, more Sino-DPRK trade and South Korea’s assistance to North Korea negatively affect donors’ aid, more FDI into North Korea has positive effects on it. Finally, bilateral trade between donors and DPRK is found to be insignificant.

This paper is organized as follows. The section II examines prior works on foreign aid in general as well as ODA to North Korea in particular. The section III investigates current status and key characteristics of aid to North Korea. In the following sections, research design and statistical analyses are presented. The final section concludes with some policy implications.

Literature Review

While international aid was provided long before World War II, it was the post-WWII reconstruction efforts that ushered in modern era of aid-giving (Riddell, 2007, p. 24). In particular, since the establishment of OECD's Development Assistance Committee (DAC) in 1961, foreign aid increased substantially and steadily in order to promote economic development and welfare of aid recipients as well as to enhance donors' political and economic interests. ODA amount was 1,630 billion USD in 2011, dramatically increased from 3.9 billion USD in 1959.

Along with increase in the amount of foreign assistance were global efforts to improve aid effectiveness. In the 55th UN General Assembly meeting in 2000, 189 national leaders around the world set the Millennium Development Goals (MDGs) to respond poverty and other developmental issues more systematically. Five years later in Paris, over 100 countries—both developed and developing—agreed to improve the quality of aid and its effectiveness on development, for which five principles and performance indicators were proposed. Included in the five principles are (1) ownership, meaning recipient countries set their own development strategies, (2) alignment for which donors support in line with these strategies and use local systems, (3) harmonization among donors who need to coordinate actions and share information, (4) managing for result, and (5) mutual accountability for development result. This growing emphasis on and concern about aid effectiveness related to the fact that aid had failed to bring forth tangible and sustainable development results especially in fragile states. Numerous works have been published to address problems of aid in fragile states, examine their causes and consequences, and propose policy recommendations to resolve them (Zellweger, 2012).

Foreign aid to North Korea, in this regard, attracted much scholarly attention because the country, while fragile, is different from other under-performing countries. According an observer, North Korea is “on one hand a fragile state failing to deliver services and goods to its people, and on the other hand it is a strong state with a power monopoly, or with too much state and no civil society” (Zellweger, 2012). Moreover, given the implications of (un-)development of North Korea to East Asian regional security and cooperation, particular attention is paid to whether and to what extent aid to North Korea would result in positive outcomes.

On the one hand, many works examine trends and key characteristics of ODA to North Korea. For instance, Manyin and Nikitin (2014) take a closer look at the history of U.S. aid to North Korea with a special focus on energy, denuclearization, and food assistance. Jung et al. argue that donors have different priorities and pursue their own interests when they provide

aid to North Korea. It find that Nordic plus countries provide more untied aid and more aid in humanitarian and emergency aid sectors than others(2015). Kim argues that aid to North Korea has been politicized, further undermining aid ineffectiveness (J. Kim, 2014). Some studies investigate effects of aid to North Korean economy and society.

On the other hand, there are some works that propose international cooperation to facilitate development assistance to North Korea, emphasizing the role of international financial institutions (IFIs), INGOs, and international norms (Lancaster, 2004). These works stress that harmonization among donors—DAC countries, international organizations, NGOs, etc—should be achieved to make aid more effective. In addition, it is argued that South Korea's assistance toward North Korea needs to be incorporated into these international efforts.

While these works definitely broaden our perspectives on aid to North Korea and deepen our understanding of it, they fail to investigate what determines donors' aid policies toward North Korea. Although some works find differences in aid providers (Jung et al., 2015), they still remain descriptive and sometimes normative. Moreover, most works focus on donors' aid to North Korea without considering its relationship with North Korea's biggest donors, China and South Korea. While China, as the most important trading partner, plays a crucial role in North Korean economy, whether and to what extent Sino-DPRK economic relationship affects aid policies of donor countries are not examined. In addition, South Korea also provides its own aid, which is not counted in DAC aid statistics, which might also affect donors' decision to provide aid to North Korea. Finally, the possibilities that donors have different economic relationship with North Korea are not empirically tested.

In this regard, unlike previous studies, this paper empirically examines the factors that affect donors' aid provision to North Korea. More specifically, it carefully considers how bilateral trade, North Korea's economic performance, and its external economic relationship have influence on donors' aid policies. In the following section, we explore current status and key characteristics of ODA to North Korea since 1995.

North Korean Economy and Foreign Assistance, 2001-2013

North Korean economy still faces chronic economic problems although the worst period of the economic crisis and famine seems to be over. It was in the 1990s that a series of events including the collapse of the Soviet Union and the disruption of trade and aid, the abolition of the friendly trading relationship with China, and discord between North Korea and China after diplomatic normalization between South Korea and China shocked the North Korean economy. Furthermore, the Great Famine in the mid-1990s and its aftermath were so disastrous for the North Korean economy that many believed that North Korea was on the verge of collapse. Although the worst of the famine and economic disasters seemed to have since passed, North Korean economy still remained isolated and underdeveloped because of continuing

nuclear standoff, economic sanctions, and lack of market-oriented economic reform. Furthermore, the death of Kim Jong Il in December 2011 and the rise of the young Kim Jong Un to the top leadership made the future of North Korea economy and society even more uncertain.

While North Korean economy is still one of the least open economies, there have been some major changes during last 20 years. First, North Korea's international trade volume had stagnated during most of 1990s and 2000s while it grew rapidly in the 2010s, reaching 7.6 billion USD in 2014. Trade volume hit the lowest point in 1998 and resumed its Cold War level in 2010. Of great significance is that North Korea's trade with China increasingly overwhelmed those with other countries. The share of North Korea's trade with China among its trade with all countries except South Korea grew 90.2 per cent 2014 from 24.7 per cent in 2000. Moreover, North Korea has experienced chronic deficits in international trade, approximately 0.5 to 1.5 billion USD annually. Finally, while trade has increased rapidly in recent years, natural resources such as minerals constitute major exports, showing that North Korea still has typically underdeveloped trade patterns of exporting raw materials and importing commodities and intermediate goods (Yang, 2010).

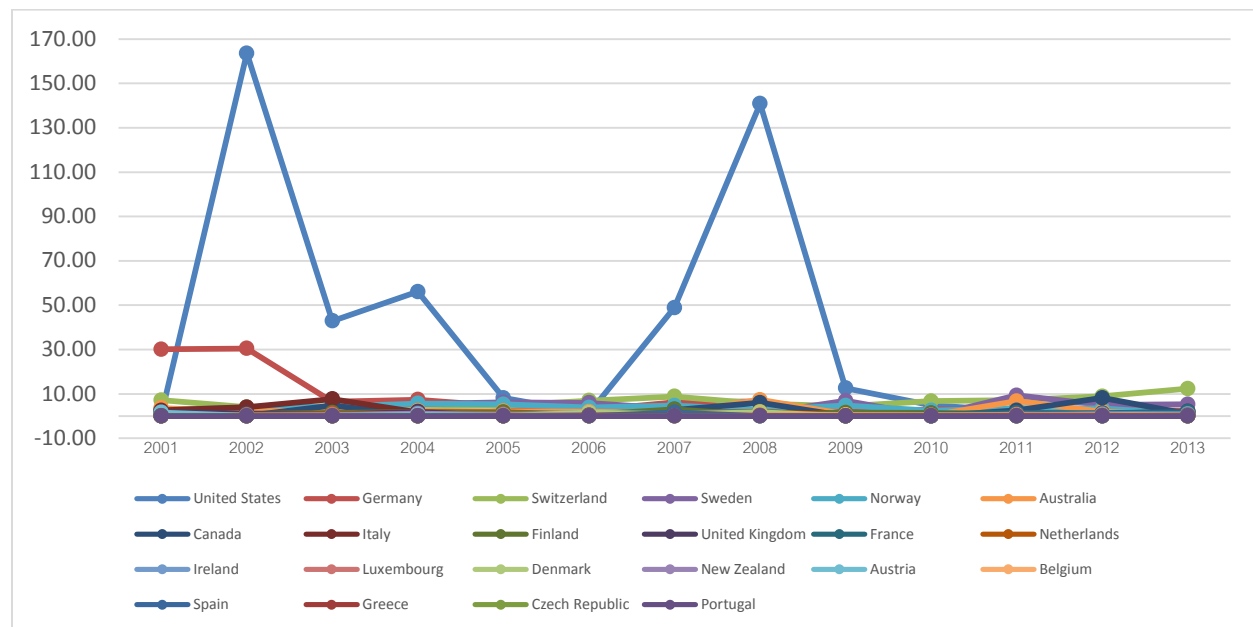
Second, FDI also appears to be on the rise in the 2010s although the amount remains small and limited. The FDI amount in the 1990s was 40.7 million USD annually and this trend continued in the 2000s as the average amount of FDI was 39.6 million USD. It was in the 2010s that FDI inflows increased rapidly. Similar to international trade, recent increase in FDI inflows largely owes to Chinese investment in North Korea. Despite this recent rise of FDI, scholars maintain that its impact on North Korean economy would not be transformative (Jung & Rich, 2015).

Third, inter-Korean relationship experienced ups and downs in the last 20 years. While South Korea's assistance to North Korea was not trivial during the period of 1998-2008 under the so-called "Sunshine Policy," it almost stopped after *Cheonan* ship sinking and South Korean government's decision (May 24 Measure). The total amount of South Korea's aid to North Korea from 1998 to 2008 was 1.1 billion USD (100 million USD annually) while the amount from 2009 to 2012 was 49.8 million USD (12.4 million annually). Due to deterioration of inter-Korean relationship, North Korea's dependence on China further increased. In sum, North Korea's external economic relations for the last twenty years show gradual improvements in terms of trade and investment while chilly inter-Korean relationship and chronic trade deficit had negative impact on economic revival.

In this context of North Korea's external economic relations, foreign assistance to North Korea played an important role in sustaining North Korean economy. International community provided 1.9 billion USD in total to North Korea during the period of 1995-2013 while bilateral aid for the same period amounts to 1.2 billion USD. Especially, foreign aid to North Korea was instrumental in preventing further deterioration of North Korean economy in the aftermath of the Great Famine especially when South Korea's assistance and foreign investment in North Korea

remained at a low level. According to Eberstadt (2004), the upsurge of Western aid to North Korea “played a role—possibly an instrumental role—in reducing the risk of economic collapse and increasing the odds of survival for the North Korean state.”

[Figure 1] DAC Countries’ Aid to North Korea, 2001-2013 (million USD)



Source: OECD Creditor Reporting System Statistics

A closer look at foreign aid to North Korea, however, reveals that there exist great variations in terms of aid amount, sectors, and tiedness across countries an time (Jung et al., 2015). Among those countries that provided ODA to North Korea, for instance, United States, as the largest aid giver, gave 669.9 million USD to North Korea from 1995 to 2013 while Spain provided only 2 million USD for the same period. Switzerland and Sweden, both being comparatively smaller economies in terms of GDP than Spain, provided 106 million USD and 75 million USD to North Korea respectively. For political reasons, Japan, one of the closest neighbors of North Korea, did not provide a single dime to the country.

Moreover, some donors, notably Nordic plus countries,¹ provide more aid to sectors such as food aid and emergence relief than others. According to Jung et al. (2015), approximately 77% of aid provided by Nordic plus countries utilized in such sectors while 53% of aid provided by other countries did. In addition, the share of tied aid was much lower in those by Nordic plus countries than other donors, which was 0.43% and 26.42% respectively. These differences are statistically significant.

¹ Nordic plus countries are Denmark, Finland, Ireland, Netherlands, Norway, Sweden, and UK.

Research Design

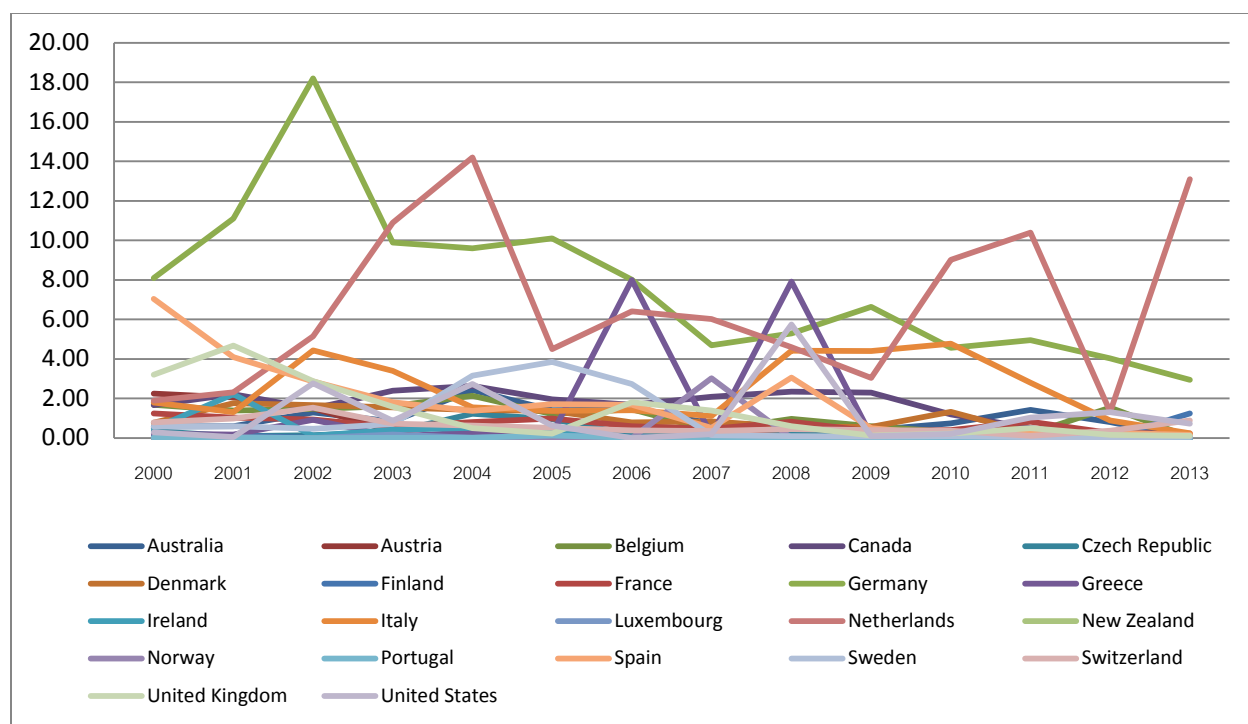
Despite the importance of foreign aid to North Korea, there have been very few empirical works on its determinants. While most DAC countries provided aid to North Korea, there are great variations in terms of aid amount, which indicates that the aid policies toward North Korea varied considerably depending on North Korean economy and their relationship with the country. For example, the United States was the largest aid provider from 2001 to 2013 while aid amount had dramatically decreased since after 2009. Germany, the second largest aid-giver, provided 117.3 million USD (see [Appendix]). What affect donors' aid amount to North Korea? To answer this question, this paper focuses on the three factors that may affect donors' aid to North Korea: bilateral economic relationship, North Korea's economic situation, and its external economic relations such as FDI inflows, Sino-DPRK trade, and South Korea's assistance.

1. Bilateral Trade with North Korea and ODA

According to scholars, trade and aid have positively relationship in general. Bilateral trade between a donor and a recipient can positively affect foreign aid. This is so because mutual gains from inter-state trade between donors and recipients can have influence on donors' aid decisions (Lee, 2005). As inter-state trade grows, it is likely that a donor country would be incentivized to provide more aid to a recipient because the latter's economic development would further increase economic benefits from bilateral trade. Moreover, traders in aid-giving countries who have vested interests in continuation of trade relations and overall friendly bilateral relationship might put pressure on their government to provide more aid. In addition, as bilateral trade grows, a recipient country taking part in international trade is likely to adopt international norms, further inviting international aid (Osei, Morrissey, & Lloyd, 2004). In a similar vein, Alesina and Dollar (2000, p. 40) find that a relatively open country in terms of trade policies receives more aid.

While China is by far the most significant trade partner of North Korea, it is not the only partner. Among donors, Germany, Netherlands, Italy, Canada, and Greece are top five trading partner of North Korea. Trade volume between Germany and North Korea amounted to 81.96 million USD during 2002-2011, followed by Netherlands whose trade volume with North Korea was 74.24 million USD. Therefore, we can hypothesize that increase in bilateral trade between a donor and North Korean would positively affect the former's aid to the latter.

[Figure 2] Bilateral trade volume between donors and North Korea, 2000-2013 (million USD)



Source: UNCTAD

Hypothesis 1: Bilateral trade volume between a donor and North Korea will positively affect the donor's ODA to North Korea.

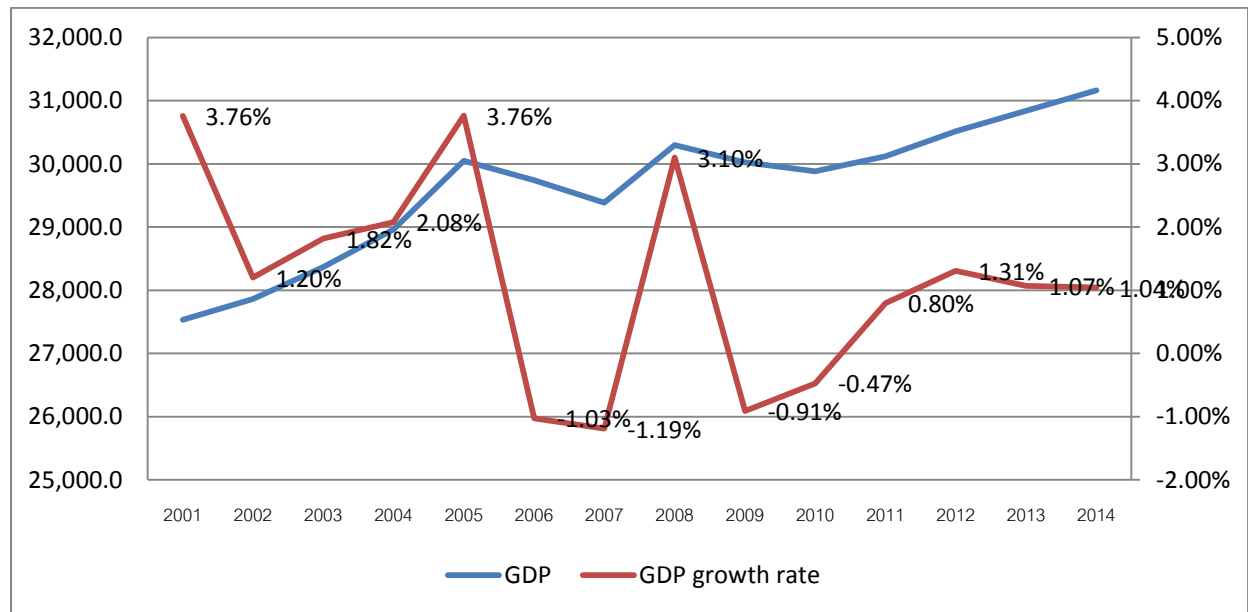
2. North Korea's domestic economic situation

North Korean economy had experienced chronic stagnation with low growth rates for the last fifteen years. While foreign trade and direct investment increased substantially during the same period, these did not bring about growth in productivity and sustainable growth. Moreover, due to a series of nuclear and missile crises, international community imposed economic sanctions on North Korea, further damaging North Korea's already crippled economy. Especially vulnerable were women and children who were at most risk of being malnourished.

In this regard, an aid-giving country's decision to provide aid to North Korea is likely to be affected by North Korea's economic and humanitarian situation given that the very purpose of initial assistance to North Korea was humanitarian crisis in the mid-1990s. Scholars maintain that one of the primary reasons why donors provide assistance to recipients is to help the latter to overcome development problems (E. M. Kim & Oh, 2012). Moreover, given the nature of North

Korean regime, it is very well-known that North Korean authorities had been very restrictive toward aid workers who distributed and monitored food aid. According to Manyin and Nikitin(2014, p. 3), North Korean regime's restrictive approach to foreign aid varied "in accordance with the government's desperation for outside food." Therefore, both donors and DPRK authorities might be incentivized to provide and receive more aid when facing worsening economic situation. Therefore, North Korea's economic condition might affect donors' aid policies.

[Figure 3] North Korea's GDP and GDP Growth Rate (USD, %)



Source: North Korea Information and Statistics Portal

Hypothesis 2: North Korea's economic growth will negatively affect donors' ODA to North Korea.

3. North Korea's external economic relations

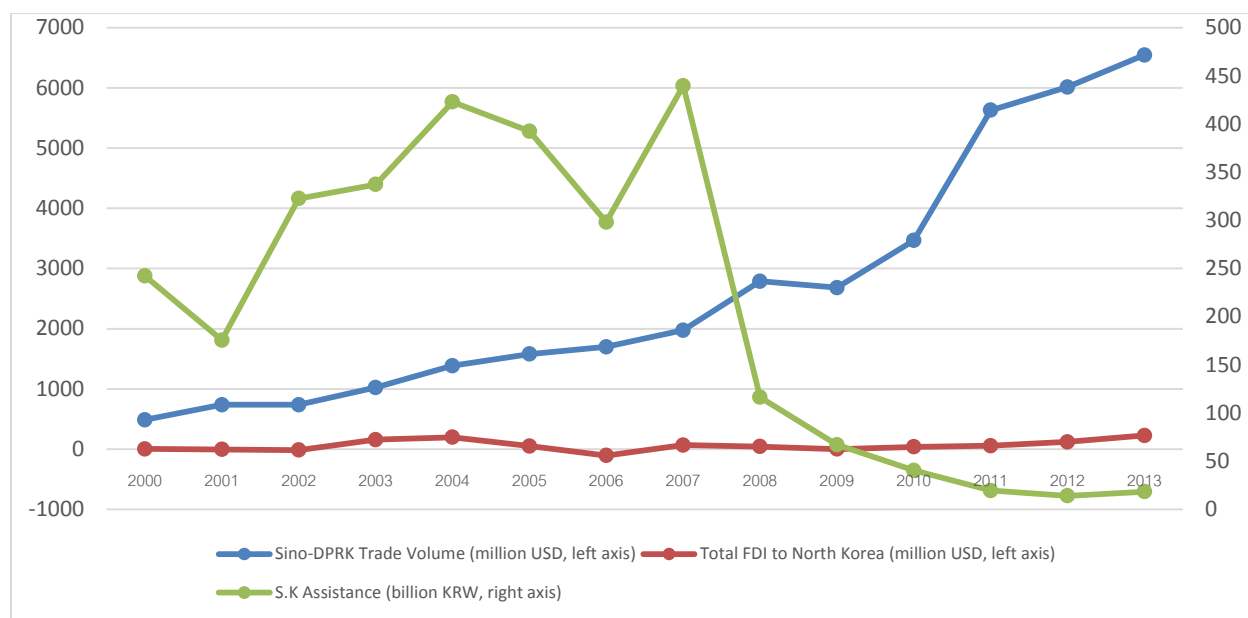
Due to the fundamental dilemma between regime stability and economic reform/opening, foreign observers paid much attention to North Korea's external economic relations (Haggard & Noland, 2008). As North Korean economy became marketized, it seems that North Korea's external economic relations expanded over time. In terms of DPRK's foreign economic relations,

this paper emphasizes FDI inflows, Sino-DPRK trade, and South Korea's assistance to DPRK, which are supposed to have influence on aid decisions by donors.

First, increase in FDI into North Korea is likely to affect donors' decision to allocate their aid to North Korea. The relationship between foreign aid and FDI in recipient countries has been much discussed although existing works generate valuable yet inconclusive results. Some argue that ODA has a vanguard effects on FDI in that aid by a donor promotes FDI from the donor (Kimura & Todo, 2010). In contrast, others argue that ODA negatively affects FDI inflows into recipient countries. Recent studies find that aid provided for physical capital repels FDI out while aid invested in sectors complementary invites FDI, suggesting that the composition of aid matters (Selaya & Sunesen, 2012).

While the effects of foreign aid on FDI—whether they are complementary or substituting—are controversial, the effects of FDI on ODA are much less explored. As for the latter, one might argue that a recipient country that attract FDI would receive less aid because private capital flows appear to be sufficient for its development purposes. On the other hand, donors might provide more aid to a recipient with low level of FDI in order to promote FDI in the future.

[Figure 4] External Economic Relations of North Korea



Source: North Korea Information and Statistics Portal; UNCTAD Statistics; Ministry of Unification of the Republic of Korea.

In case of North Korea, FDI is likely to repel ODA because, in the presence of much investment, donors as well as North Korea would have less incentive for foreign aid. Donors might take FDI increase as a signal that North Korean economy gets better and reduce their aid amount. From the perspective of North Korea, its regime might feel less desperate with more foreign investment and become less cooperative toward donors.²

Hypothesis 3-1: FDI inflow to North Korea will negatively affect donors' ODA to North Korea.

Second, Sino-DPRK economic relationship and their changes likely affect aid allocation by donors. Trade between the two countries, while remaining at low level until the early 2000s, grew rapidly since the mid-2000s. The data show that Sino-DPRK trade dramatically increased rapidly both in absolute and relative terms. Trade volume increased to 6,864 million USD in 2014 from 1,023 million USD in 2003. In relative terms, the share of Sino-DPRK trade in North Korea's total trade increased from 23.5% in 2000 to 56.9% in 2010. It is reported that North Korea's dependence on China in trade increased to 90.1%. Of great significance is that "China has accounted for nearly 90% of (North Korea's) energy imports" (Eberstadt, 2004). This suggests that Pyongyang would be able to get what it needs from increasing trade with Beijing. This in turn might disincentivize donors from providing aid to North Korea.

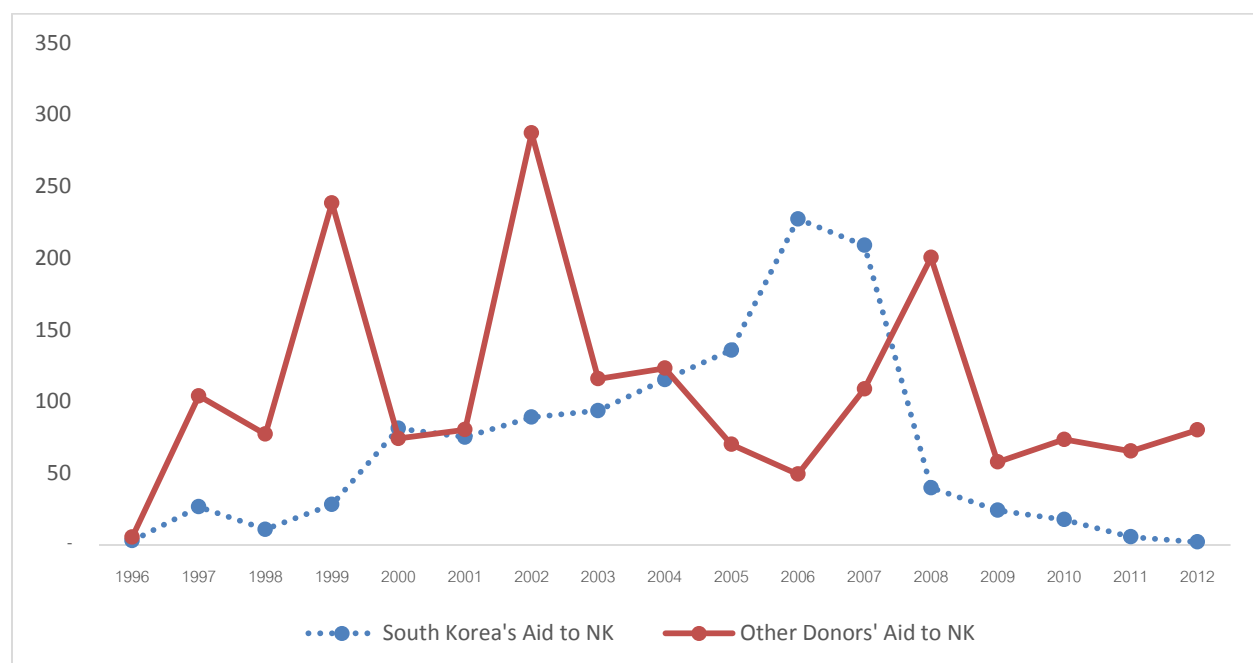
Intensifying economic relationship with China and North Korea may discourage donors from giving aid because the latter might believe that aid to North Korea might be less effective or in some cases, help release resources from humanitarian sectors to military ones, further exacerbating nuclear problems. Moreover, because China and its assistance to North Korea might undermine effective sanction on North Korea, it is likely that some donors determine their aid policies in careful consideration of Sino-DPRK relationship. In contrast, when trade between China and North Korea decrease, donors might provide more aid to North Korea, the latter of which also might be more cooperative with donors to get more aid.

² Some might argue that FDI into North Korea would invite more aid to the country or it would have little relationship with foreign aid. This is so because foreign private capital in North Korea is invested in natural resources extraction such as mining and fishing, which has little positive effects on North Korea's economic development. In this context, western donors might be incentivized to provide aid regardless of FDI inflows. However, given that revenues from FDI can be used to meet North Korea's needs—including nuclear and missile ambition—, western donors may reduce their aid amount because their aid may further free up North Korea's resources for military use. Moreover, aid is fungible even if western donors try to specify where the money should go.

Hypothesis 3-2: Sino-DPRK trade volume will negatively affect donor's ODA to North Korea.

Third, South Korea's assistance to North Korea can negatively affect foreign aid to North Korea as well. Inter-Korean relationship experienced ups and downs for the last two decades, reflecting cooperation and conflicts between the two Koreas. Inter-Korean relationship that had been characterized by mistrust and instability began to improve under the presidency of Kim Dae-jung. Especially during the presidency of Roh Moo-hyun, South Korea's assistance to North Korea dramatically increased, surpassing the amount of the total aid from donors. In the period of 2005-2007, the total amount of South Korea's aid was about 572 million USD while that of other DAC members amounted to about 228.49 million USD. However, South Korea's aid to North Korea was dramatically curtailed under Lee Myung-bak administration that implemented the so-called May 24 Measure in response to *Cheonan* ship sinking in 2010. Given that assistance by South Korea, technical still at war with North Korea, mostly focus on humanitarian issues in the North, increasing assistance by South Korea for the North that help improve humanitarian crisis in DPRK might have negative effects on aid by other donors.

[Figure 5] South Korea's Aid to North Korea (million USD)



Source: North Korea Information and Statistics Portal; OECD Creditor Reporting System

Hypothesis 3-3: South Korea's assistance to North Korea will positively affect donors' ODA to North Korea.

Statistical Analysis

In this study, we analyze the determinants of ODA with panel regression model. The panel model has some benefits because the model can control unpredicted variables over change of the time. The period that our analysis examine ranges from 2001 to 2013 mainly because some key explanatory variables such as Sino-DPRK trade are available only during this period.

The dependent variable for the analysis is the total aid amount of a donor to North Korea in a given year. The data is officially reported by OECD/DAC annually. As for independent variables, we use (a) bilateral trade volume between individual donors and DPRK, (b) GDP growth rate of North Korea, (c) North Korea's external economic relations such as FDI inflows, Sino-DPRK trade volume, and South Korea's assistance.

The below table shows the source and description of the variables. The ODA variables is total amount of a donor's ODA to North Korea. Bi_trade variable means bilateral trade volume between a donor and North Korea. The GDP_growth variable means North Korea's GDP growth rate in a given year. The FDI variable refers to total amount of FDI into North Korea in a given year. Sino_NK_trade is the total trade volume between China and North Korea in a given year. The SK_aid variable means total amount of South Korea's humanitarian aid to the North. All variables are applied in a logarithm. Finally, we control the year effect in our analysis.

[Table 1] Variables Description

	Variable	Description	Source	Note
DV	ODA	Official Development Assistance(million USD)	OECD Statistics	log
IV	Bi_trade	Amount of Bilateral Trade (million USD)	IMF E-Library Statistics	log
	GDP_growth	GDP growth rate of North Korea	N.K Information and Statistics Portal	%
	FDI	Total FDI to North Korea (million USD)	UNCTAD Statistics	log
	Sino_NK_trade	Total amount of Trade between China and North Korea (million USD)	N.K Information and Statistics Portal	log
	SK_aid	Humanitarian aid of South Korea (billion KRW)	N.K Information and Statistics Portal	log

[Table 2] Descriptive Statistics

Variable	Observation	Mean	Std. Dev.	Min	Max
ODA	413	2.998	14.428	0	176.167
Bi_trade	308	13.980	24.916	0	181.8919
GDP_growth	418	.352	2.937	-6.5	6.1
FDI	418	61.161	97.175	-104.62	307.37
Sino_NK_trade	308	2625	1981.36	488	6547
SK_aid	418	170.4	151.112	3.6	439.7

[Table 3] Correlation of Variables

	ODA	Bi_trade	GDP_growth	FDI	Sino_NK_trade	SK_aid
ODA	1					
Bi_trade	0.176**	1				
GDP_growth	0.112*	0.074	1			
FDI	-0.018	-0.036	-0.200**	1		
Sino_NK_trade	-0.057	-0.142*	-0.153**	0.434**	1*	
SK_aid	0.046	0.118*	0.202**	-0.077	-0.755**	1

Note: level of significance(* p<0.05, ** p<0.01)

We test our hypotheses by dividing the group into four. First, in the first model, we include all donors who provided aid to North Korea. The second model exclude the United States not only because the U.S. provided much more aid than other donors did in some years but also because the political and strategic goals of the U.S. aid might be different from those of other donors. In the third model, we include only European countries that tried to build diplomatic relationship with North Korea in the 2000s. In the final model, we test our hypotheses only with Nordic plus countries because, according to previous works, these countries showed quite different aid policies toward North Korea.

The results show that North Korea's economic situation and external economic relations affect donors' aid policies. In the first, second, and third models, all variables except bilateral trade volume are found to be statistically significant. Interesting is that Sino-DPRK trade and South Korea's assistance negatively affect a donor's aid to North Korea as expected while, on the contrary, FDI inflows to North Korea have positive effects. In these three models, the positive effects of FDI inflows to North Korea are consistent.

Bilateral trade volume between donors and North Korea is found to be statistically significant only in the final model. When Nordic plus countries are included in the test, bilateral trade, Sino-DPRK, and South Korea's assistance matter. However, the effect of bilateral trade between Nordic plus countries and DPRK on their aid is negative, contrary to the expectation. This, in combination with no effect of North Korea's growth rate on the dependent variable, might mean that Nordic plus countries put more emphasis on humanitarian needs in North Korea.

[Table 4] Results of Panel Regression (random effect model)

	Model 1	Model 2	Model 3	Model 4
	All donors	All Donors (excluding US)	European countries	Nordic Plus
Bilateral trade (log)	-0.025(-0.74)	-0.029(-0.68)	-0.012(-0.34)	-0.106*(-1.80)
DPRK GDP growth rate	-0.863**(-2.34)	-0.933**(-2.37)	-0.871*(-1.94)	-1.443(-1.34)
FDI to DPRK (log)	2.749**(2.53)	2.990*** (2.58)	2.484**(2.08)	4.743(1.63)
Sino-DPRK trade (log)	-1.472**(-2.51)	-1.592**(-2.53)	-1.358**(-1.99)	-2.928*(-1.76)
South Korea's assistance (log)	-2.060**(-2.57)	-2.251***(-2.63)	-1.997**(-2.11)	-3.938*(-1.73)
Year dummy	yes	yes	yes	yes
Number of observation	308	294	252	98

Note: Standardized beta coefficients; t statistics in parentheses (* p<0.1, ** p<0.05, *** p<0.01)

Conclusion

Foreign aid to North Korea had been key to North Korean society and regime during hard times. While there have been numerous works that examine foreign assistance to North Korea and its implications, few works attempt to empirically investigate the determinants of ODA to North Korea. This paper finds that bilateral trade between donors and DPRK does not affect the formers' aid allocation to the latter while North Korea's GDP growth rate and external economic relations do. More specifically, FDI inflows into North Korea positively affect aid flows, indicating that donors might take North Korea's acceptance of foreign capital as positive sign and increase their aid to tackle humanitarian and development problems. On the contrary, Sino-DPRK trade and South Korea's assistance to North Korea seem to repel donors' aid, implying that, from the perspective of donors, enhanced relationship between DPRK and its neighbors—South Korea and China—help North Korea deal with economic problems, and with it North Korean authorities became less desperate for DAC members' assistance that require more transparency and are more intrusive. The findings suggest that donors take into careful consideration geopolitical circumstances of North Korea when allocating their aid.

There are several implications. First, it is of great significance how to make South Korea's assistance and other DAC donors' aid policies toward North Korea aligned with each

other. The negative relationship between these two might result from lack of communication and coordination, which might have undermined aid effectiveness of both. Second, international aid community needs to cooperate with China for North Korea's development as China, the biggest trade partner and investor for North Korea, plays a key role in North Korean economy. Third, as FDI inflows into North Korea positively affect aid distribution into North Korea, DAC countries might need to take seriously the ways in which private capital and ODA can have mutually reinforcing effects, resulting in sustainable development in North Korea.

Reference

- Alesina, Alberto, & Dollar, David. (2000). Who Gives Foreign Aid to Whom and Why? *Journal of Economic Growth*, 5(1), 33-63.
- Eberstadt, Nicholas. (2004). The Persistence of North Korea. *Policy Review*, 127.
- Testimony of L. Gordon Flake, Executive Director, The Maureen and Mike Mansfield Foundation*, (2004).
- Haggard, Stephan, & Noland, Marcus. (2005). *Hunger and Human Rights: The Politics of Famine in North Korea* (1st ed.). Washington, DC: U.S. Committee for Human Rights in North Korea.
- Haggard, Stephan, & Noland, Marcus. (2008). North Korea's Foreign Economic Relations. *International Journal of the Asia-Pacific* 8(2), 219-246.
- Joo, Seung-Ho. (2012). North Korea under Kim Jong-un: The Beginning of the End of a Peculiar Dynasty. *Pacific Focus*, 27(1).
- Jung, Heon Joo, Park, Geon-woo, & Lee, Yoon-ah. (2015). An Exploratory Analysis of Official Development Assistance to North Korea. *The Studies of International Affairs*, 15(1), 173-204.
- Jung, Heon Joo, & Rich, Timothy S. (2015). Why invest in North Korea? Chinese foreign direct investment in North Korea and its implications. *The Pacific Review*, 1-24. doi: 10.1080/09512748.2015.1022582
- Kim, Eun Mee, & Oh, Jinhwan. (2012). Determinants of Foreign Aid: The Case of South Korea. *Journal of East Asian Studies*, 12(2), 251-273. doi: doi:10.5555/1598-2408-12.2.251
- Kim, Jiyoung. (2014). The Politics of Foreign Aid in North Korea. *the Korean Journal of International Studies*, 12(2), 425-450.
- Kimura, Hidemi, & Todo, Yasuyuki. (2010). Is Foreign Aid a Vanguard of Foreign Direct Investment? A Gravity-Equation Approach. *World Development*, 38(4), 482-497. doi: <http://dx.doi.org/10.1016/j.worlddev.2009.10.005>
- Lancaster, Carol. (2004). Foreign Aid and International Norms: The Case of North Korea. In C.-y. Ahn, N. Eberstadt & Y.-s. Lee (Eds.), *A New International Engagement Framework for North Korea?: Contending Perspectives*. Washington D.C.: Korea Economic Institute of America.
- Lee, Jaewoo. (2005). Analysis on the Determinants of Korea's Official Development Assistance Allocation. *Exim Overseas Economic Review*, 24(10), 4-21.
- Manyin, Mark E., & Nikitin, Mary Beth D. (2014). *Foreign Assistance to North Korea*. (R40095). Washington D.C.: Congressional Research Service.
- Osei, Robert, Morrissey, Oliver, & Lloyd, Tim. (2004). The Nature of Aid and Trade Relationships. *The European Journal of Development Research*, 16(2), 354-374. doi: 10.1080/0957881042000220859
- Park, Hyeong Jung. (2009). *Assistance to North Korea and North Korea Policy* Korea Institute for National Unification.
- Riddell, Roger C. (2007). *Does Foreign Aid Really Work?* Oxford; New York: Oxford University Press.
- Selaya, Pablo, & Sunesen, Eva Rytter. (2012). Does Foreign Aid Increase Foreign Direct Investment? *World Development*, 40(11), 2155-2176. doi: <http://dx.doi.org/10.1016/j.worlddev.2012.06.001>
- Yang, Moon-Soo. (2010). *Pukhan Kyongjaeeui Sijanghwa (Marketization of North Korean Economy)*. Seoul, South Korea: Hanul.

Zellweger, Katharina. (2012). Aid and Development Co-operation and North Korea: A Window of Opportunities or pushing at a closed door? *KDI Review of the North Korean Economy*, August, 57-66.

[Appendix] Aid Allocation by Donors, 2001-2013 (million USD)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	Total ODA
United States	0.25	163.54	42.90	56.1	8.20	1.22	48.88	140.84	12.59	4.96	2.34	2.69	1.21	669.89
Germany	30.09	30.46	6.55	7.36	4.42	2.52	6.25	6.64	1.81	3.05	2.66	2.83	2.42	117.28
Switzerland	7.20	4.01	4.49	4.97	4.69	6.97	8.85	5.63	4.46	6.73	7.27	8.88	12.35	106.31
Sweden	2.94	3.70	4.05	5.54	6.13	5.92	3.34	1.09	6.88	0.00	9.30	5.01	5.30	74.98
Norway	2.59	3.58	4.38	5.62	5.29	3.85	4.73	2.92	4.75	2.48	3.57	3.44	0.88	71.01
Australia	3.62	1.97	2.75	2.41	2.17	1.96	1.23	7.28	0.79	0.22	6.71	2.07	0.09	51.88
Canada	1.67	0.19	4.78	0.40	1.36	0.20	2.79	6.04	0.01	0.00	2.53	8.20	1.01	38.80
Italy	2.55	4.00	7.68	1.75	1.06	1.02	1.78	1.62	1.10	0.12	0.46	0.24	0.55	26.62
Finland	0.60	0.94	1.47	1.91	1.77	0.69	3.02	0.38	1.57	1.42	0.97	0.93	1.50	20.13
United Kingdom	1.84	1.20	0.65	1.88	0.00	0.00	1.17	0.27	0.05	0.41	0.61	1.20	2.05	15.30
France	0.18	0.25	0.32	0.31	0.32	0.59	0.32	1.24	0.27	0.70	1.49	1.28	1.86	9.75
Netherlands	0.07	0.63	0.87	0.64	0.70	0.65	0.69	1.97	0.28	0.13	0.10	0.10	0.00	9.18
Ireland	0.00	0.00	0.05	0.12	0.31	1.51	0.49	1.16	0.00	0.00	0.35	0.85	0.86	5.70
Luxembourg	0.00	0.09	0.59	0.90	0.66	0.63	0.34	0.29	0.35	0.00	0.70	0.37	0.52	5.44
Denmark	0.00	0.00	0.00	0.00	0.00	1.51	0.92	1.74	0.00	0.00	0.14	0.00	0.00	4.32
New Zealand	0.00	0.28	0.21	1.11	0.29	0.21	0.40	0.35	0.00	0.00	0.00	0.00	0.00	3.19
Austria	1.57	0.11	0.12	0.57	0.14	0.13	0.01	0.01	0.01	0.02	0.03	0.00	0.03	3.05
Belgium	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.42	0.43	0.37	0.34	0.32	0.38	2.32
Spain	0.00	0.00	0.01	0.05	0.00	0.04	1.58	0.00	0.00	0.00	0.00	0.00	0.34	2.03
Greece	0.00	0.00	0.00	0.00	0.01	0.28	0.11	0.14	0.13	0.14	0.14	0.16	0.00	1.10
Czech Republic	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.04	0.09
Portugal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00