

THREE ESSAYS ON THE EFFECTIVENESS OF FOREIGN AID

by

Yunhee Choi

A Dissertation Submitted in

Partial Fulfillment of the

Requirements for the Degree of

Doctor of Philosophy

in Political Science

at

The University of Wisconsin-Milwaukee

August 2021

ABSTRACT

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Yunhee Choi

The University of Wisconsin-Milwaukee, 2021

Under the Supervision of Professor Uk Heo

Throughout three essays, this dissertation investigates three important aspects of the effectiveness of foreign aid: whether and how foreign aid is effective. Chapter 1 explains the background of the study on foreign aid. This introduction chapter also summarizes my arguments and the empirical strategies of each essay. Chapter 2 analyzes when foreign aid helps the recipient countries' economic growth. In specific, this chapter argues that the political leaders' survival strategy determines how to spend the aid, and it makes the difference in the aid effectiveness to achieve economic growth. Using a panel dataset for the 82 aid recipient countries between 1960 and 2010, this study finds that foreign aid is more likely to lead to economic growth in the case of a large winning coalition. In Chapter 3, I examine how foreign aid reduces political violence in recipient countries. Based on the findings of Chapter 2, I further argue that aid recipients experience less political violence due to its contribution to economic growth. Utilizing a moderated mediation model, I find that the recipient country achieves positive economic growth in a large winning coalition and consequently experiences fewer civil wars and domestic terrorist attacks. Chapter 4 investigates the effectiveness of foreign aid from the perspective of the donor country. In particular, I argue that foreign aid leads to more export of donor country to the recipient because implementing aid serves as building and enhancing the

relationship between donors and recipients. Using Korean bilateral aid and export data to recipient countries between 1965 and 2015, this chapter shows that bilateral aid increases the donor's export toward recipient countries. The effect becomes more prominent in the long term. Chapter 5 concludes. This concluding chapter emphasizes the main arguments and findings and draws aid policy recommendations.

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To
My family

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ACKNOWLEDGEMENTS

First, I would like to express my sincere gratitude to my advisor, Professor Uk Heo. It was he giving me this great opportunity to study at UWM and ceaselessly supporting me to complete my Ph.D. program. Throughout my Ph.D. studies, Dr. Heo has been not only an outstanding academic advisor but also a considerate and passionate mentor. I could not have imagined having a better advisor and mentor for my academic life.

Besides my advisor, I would like to thank the other members of my dissertation committee: Professor Shale Horowitz, Professor Steven Redd, and Professor Hong Min Park. Their insightful advice and comments on theoretical and methodological discussions encouraged me to develop my dissertation in a much better way. In addition, I would like to say a special thanks to Professor Shale Horowitz, who gave me the great opportunity to be an assistant for his UN summer program in New York.

My gratefulness also goes to all of the faculty, colleagues, and friends of the Political Science department at UWM who supported my long but definitely worth journey in Milwaukee. Special thanks to another mentor, Professor Sooho Song for her thoughtful care and kindness. Without her support and help, my life in Milwaukee would have been more challenging.

Last but not least, I would like to thank my family: my parents, sister, and brother. It was my family's unconditional love, care, and sacrifice which made me pursue and finish my Ph.D. study. My parents always supported me to do whatever I want sacrificing themselves. They have been the best parents for me all the time. My younger sister, Kyunghee, and my younger brother, Jingyu, have taken over all family responsibilities that I was supposed to do. Especially, my

lovely younger sister also always cheered me to have better and positive thinking and behavior and to enjoy study and life in Milwaukee. Without their support and sacrifice, I would not have been able to complete my Ph.D.

Chapter 1. INTRODUCTION

Foreign aid has been provided for more than 60 years. Notwithstanding short-term fluctuations, the number of aid donors and recipients and the overall amount of aid given have steadily increased during this time. Today, the international aid policy is a recognized part of international relations and global cooperation, employing hundreds of thousands of people and comprising a multi-billion dollar 'business.' Since 1960, more than US\$ 32 trillion of Official Development Assistance (ODA) has been disbursed around the world. In 2020 alone, the total amount of development aid was approximately US\$ 161 billion, which marked a 3.5% rise from the last year and has been more than quadrupled from about US\$ 37 billion in 1960 in real terms (OECD 2020).

This foreign assistance is also a substantial part of the international money transfer along with FDI and remittance as well as of national revenue in many developing countries. It represents approximately 0.2% of global economic output and 0.3% of donor countries' gross national income (GNI). Also, for example, in 2000, 47% of Ghana's government budget and 74% of Mozambique's government budget were from foreign aid (Real Aid: Ending Aid Dependency 2011, 8). In 2018, a third of Ethiopia's budget was covered with foreign aid: the total budget is US\$ 14 billion, and about US\$ 5 billion is covered from aid money (ESAT News, June 14, 2017).

Given the substantial amount of aid and the countries and people involved in this aid business thus, examining the effectiveness of foreign aid is a critical task for efficient and proper implementation of the policy. Here, the effectiveness of aid refers to whether the foreign aid

policy achieves its goals or not. And if so, to what extent. As the most important goal, the development aid is primarily designed to help the recipient countries' economic and social well-being and people. Specifically, the aid is supposed to go to recipient countries, helping them spend the money to relieve hunger, eliminate malnutrition, reduce poverty, and eradicate diseases. It is also provided to help them construct the basic economic and social infrastructure to increase the efficient production and competitiveness of the countries. For that reason, examining the economic growth of the recipient country is the richest and chief area concerning aid effectiveness.¹

However, foreign aid has also been an essential part of the international system and one of the vital foreign policies for donor countries pursuing their interests and aiming to build and enhance the relationship with recipient countries. Giving and receiving aid is a form of the flow of resources, transferring money, people, and services from one country or region to another. For instance, donor countries may often provide foreign aid to enhance their security. Economic assistance may be provided to prevent friendly governments from falling under the influence of unfriendly ones or as a return for getting permission to establish or use military bases on foreign soil. Foreign aid also may be provided to achieve a country's diplomatic goals, enabling it to gain diplomatic recognition, sustaining support for its positions in international organizations, or increasing its diplomats' access to foreign representatives. Other purposes of foreign aid include increasing a country's exports (e.g., through programs that require the recipient country to use the aid to buy the donor country's agricultural products or manufactured goods) and spreading its language, culture, or religion. Donor countries also provide aid to relieve the suffering caused by

¹ Some of the studies are Hansen and Tarp 2001; Moreira 2005; Gyimah-Brempong, Racine, and Gyapong 2012; Burnside and Dollar 1997, 2000; Lensink and White 2001; Easterly 2003; Karras 2006; Svensson 2000; Economides, Kalyvitis, and Philippopoulos 2008; Feeny and DeSilva 2012; Kako 2018; Ssozi, Asongu, and Amavilah 2019; Lin, Vu, and Hartley 2019; Harb and Hall 2019.

natural or human-made disasters such as famine, disease, and war and address various global problems, including terrorism, crimes, and pollution.

This dissertation is composed of three essays that examine these various aspects of the effectiveness of foreign aid for both sides, recipients, and donors. This dissertation, in particular, explores these impacts of aid from the perspective of the political economy of aid, emphasizing that aid is not only financial but also political money and resources. The three essays in this dissertation examine the impact of foreign aid on economic growth (Chapter 2) and political violence (Chapter 3) on recipient countries and export from donors to recipients (Chapter 4). This dissertation provides theoretical understanding and empirical evidence on the effectiveness of foreign aid throughout these three essays.

By doing so, this dissertation contributes to the literature on aid effectiveness by underscoring that undeniably, promoting growth and eliminating poverty are the critical dimensions of giving foreign aid. However, aid also serves many other purposes simultaneously and impacts these other dimensions for donors and international relations. It is necessary to investigate these various impacts of aid, especially for the donor countries, who face domestic skepticism and reluctance to the aid. The reason is that if aid is shown to result directly in or to contribute indirectly to tangible and identifiable benefits for those receiving and giving it, it provides practical as well as humanitarian justification for the aid and continues to provide more of it. If, on the other hand, no direct or identifiable indirect benefits from providing it are evident, then the reason and practice for providing aid fall away. Indeed, sustaining meaningful foreign aid requires the efficacy of both sides, the demand side and the supply side, who believe giving aid is beneficial not only to recipients but also to donors.

The first essay, “Foreign Aid, Winning Coalition, and Economic Growth,” addresses the conditional effectiveness of foreign aid on the economic growth of recipient countries.

Theoretically, I argue that the economic effects of foreign aid can vary over time and region due to the different political conditions of each recipient country. The same amount of foreign aid to two different countries can have completely different results because aid in one country goes where it is supposed to be, while aid in another country may not be used for the intended purpose. These different paths of aid spending come from the political leaders’ survival strategy, and the fungibility of aid allows the leaders to use the money for their political gains.

Specifically, to maximize the chance to stay in office, governments in the case of a large winning coalition spend the aid money as it is intended for, providing public goods, which is conducive to economic growth. On the other hand, in the countries in the case of a small winning coalition, the money is spent as private goods and wasted and thus less effective on growth.

To test the theoretical prediction, this essay constructed a panel dataset containing 82 developing countries from 1960 to 2010 and utilized the GMM estimation technique. The empirical results showed that the interaction between foreign aid and the winning coalition’s size significantly affects its economic growth. Mainly, it found that in the case of large winning coalitions, the economy grows as ODA increases, while in the case of small winning coalitions, the growth rate declines as ODA increases.

The second essay, “Foreign Aid, Economic Growth, and Political Violence,” deals with the indirect effects of foreign aid on political violence in recipient countries. Building upon the first essay’s theoretical reasoning and empirical findings, I further argue that foreign aid reduces political violence in recipient countries via its role in economic growth. More specifically, I claim that the effect of foreign aid on economic growth is more favorable in a society where the

political leader relies on a broad set of the winning coalition because they spend the money more effectively. Then, the growing national economy, owing to the help of aid, in turn, strengthens the government and weakens the potential rebels, which ultimately leads to less political violence.

To test the theoretical argument, I collected data on the aid recipient countries and empirically examined the indirect conditional relationship between foreign aid, the winning coalition's size, economic growth, and civil war and domestic terrorism by utilizing a moderated mediation model. The results showed that foreign aid reduces civil wars and domestic terrorist attacks via economic growth, which is moderated by the winning coalition's size.

The third essay, "Foreign Aid and Donor Export: Korea's ODA," considers the spillover effect of the foreign aid on donor's export to recipient countries. Theoretically, I argue that foreign aid increases donor export to the recipients. First, there is a direct mechanism when explicit or implicit aid conditionality is involved (e.g., tied aid). Second, although the primary aim of foreign aid focuses on promoting the economic development of recipients, it also serves the role of building a political, economic, and social relationship between donor and recipient countries. In turn, those spillover effects of foreign aid increase donor's export to the recipient countries.

To test the theoretical argument, I empirically investigated Korea's bilateral ODA and its export to the recipients between 1965 and 2015. By applying a dynamic gravity model with the GMM estimation technique, this essay found empirical evidence that Korean bilateral ODA increases its export to recipients. The impact is intensified as time goes by.

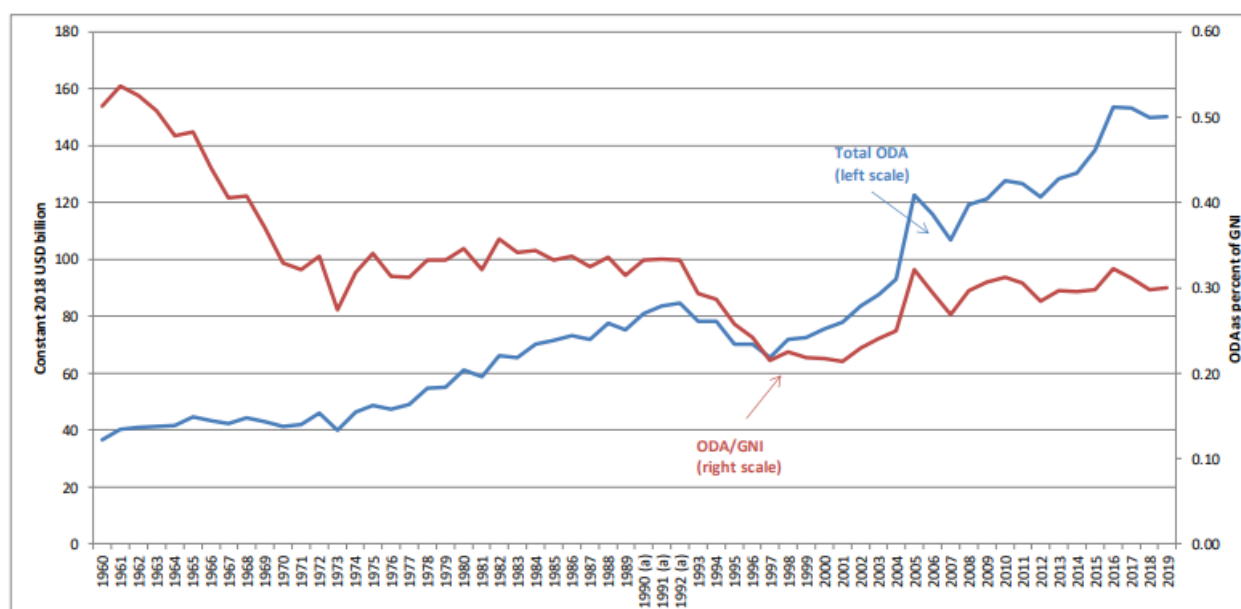
Chapter 2. Foreign Aid, Winning Coalition, and Economic Growth

2.1. Introduction

According to the OECD (Organization for Economic Co-operation and Development), ODA (Official Development Assistance) is a type of government aid that is primarily intended to enhance developing countries' economic development and welfare. ODA has increased over time, and by 2019, the accumulated amount of foreign aid from official donors reached US\$ 4.5 trillion.² In 2019 alone, ODA from the member countries of DAC (Development Assistance Committee) totaled US\$ 152.8 billion, an increase of 1.4% compared to 2018. The amount of aid represents 0.3% of the donor countries' combined GNI (Figure 1, OECD 2019) and accounts for more than two-thirds of external finance directed to LDCs (the Least Developed Countries) (OECD 2019, 1).

² It was calculated by the author using OECD data from 1960 to 2019.

Figure 2.1: Trends in Net ODA Flows by DAC Countries (Data for 2019 are preliminary)



(a) Total DAC excludes debt forgiveness of non-ODA claims in 1990, 1991 and 1992.

Source: OECD.

Given the growing amount of aid and its significance to the recipient economy, many researchers and policymakers have studied its effectiveness on economic growth. There are three perspectives on the effects of economic aids on growth. One school of thought argues that aid flows reduce poverty and promote the economic growth of the recipients (Chenery and Strout 1966; Papenek 1972, 1973; Hansen and Tarp 2001; Dalgaard, Hansen, and Tarp 2004; Moreira 2005; Economides, Kalyvitis, and Philippopoulos 2008; Gyimah-Brempong, Racine, and Gyapong 2012; Galiani, Knack, Xu, and Zou 2016). In principle, the money increases the recipient country's capital resource, which can be used for its economic and social development. For this school of thought, "foreign aid does not simply save lives; it also lays the groundwork for lasting, long-term economic progress (Gates and Gates 2014; requoted from Ravallion 2016, 519)." On the other hand, another group of scholars emphasizes the fact that poverty still looms large and underdevelopment persists in many of the recipients and claims that the aid does

nothing but harms to the developing countries (Boone 1994; Alesina and Dollar 2000; Remmer 2004; Djankov, Montalvo, and Reynal-Querol 2006; Moyo 2009; Feeny and De Silva 2012). These scholars point out that corruption, rent-seeking, and patronage politics prevalent in recipient countries hinder the proper usage of aid. For this school of thought, “giving more aid than we currently give will not make the situation better (Deaton 2013, 272)” and aid “perpetuates the cycle of poverty and derails sustainable economic development (Moyo 2009, 28).” In contrast to the groups discussed above, another perspective highlights the conditional effect of the aid. That is, foreign aid can be either effective or ineffective depending on the domestic circumstance of recipient countries, such as governance, economic policy, and political institutions (Mosley, Hudson, and Horrell 1987; Burnside and Dollar 1997, 2000; Svensson 2000a, 2000b; Lensink and White 2001; Islam 2005; Wagner 2014).

This essay engages in this debate, the nexus between foreign aid and economic growth, by arguing that the effect of aid is conditional on the size of the winning coalition of the recipient countries. According to selectorate theory, to maximize their political survivals, political leaders in the case of a large winning coalition spend foreign aid to provide public goods, which is conducive to their economy. On the other hand, political leaders in the case of a small winning coalition spend the money to provide private goods, which does not help the economy. To test the theoretical prediction, I constructed a panel dataset containing 82 developing countries from 1960 to 2010 and empirically examined the interaction effect of foreign aid and the winning coalition’s size on economic growth by utilizing the GMM estimation technique.

The contribution of this essay to the literature is twofold. Theoretically, it advanced our knowledge of foreign aid in terms of a political economy perspective to explain the aid-growth nexus. Specifically, it emphasized the role of political leaders’ survival strategy in how to spend

aid, which makes the difference in its effectiveness. Second, empirically this essay was better able to address the endogeneity concern, the most commonly challenging issue, in the aid-growth literature and provided robust evidence by utilizing the GMM method.

The rest of the essay is organized as follows. Section 2 reviews some of the existing literature on the effectiveness of foreign aid on economic growth. In section 3 I elaborate the theoretical arguments on foreign aid and economic growth by introducing the winning coalition as an intermediating role and draw hypotheses for the empirical test. Section 4 presents data and methods used to explore the dynamics of foreign aid, the winning coalition size, and their interaction effect on economic growth. Section 5 presents the empirical results and discusses the implication. Section 6 concludes.

2.2. Literature Review: Foreign Aid and Economic Growth

The effectiveness of foreign aid on economic growth has been one of the most accumulated but still controversial issues in the international cooperation and developmental economy literature. In general, it can be categorized into three schools of thought: positive, negative, and conditional effect of aid. Each has its theoretical arguments and provides empirical evidence.

2.2.1. Positive Effects of Aid on Growth

A group of scholars argues that aid facilitates economic growth via capital accumulation (Chenery and Shout 1966; Papanek 1972; Levy 1988; Islam 1992; Hansen and Tarp 2000; Aizenman, Jinjarak, and Park 2013; Adeola 2017). They view the lack of capital accumulation as the main reason for underdevelopment and poverty. Thus, aid inflow helps increase capital resources, which can be used in various sectors of the economy. Specifically, the money can be

used to mitigate foreign exchange constraints, provide access to new technologies, improve management skills, and allow easier access to foreign markets. All of these usages of foreign aid could promote economic growth.

Sachs (2005) puts it as a “poverty trap” to emphasize the role of foreign aid in that situation. The extremely poor are in a poverty trap because they are too poor to save money. Thereby, the country lacks domestic capital accumulation, which is the fundamental resource of government investment and growth. Saving, indeed, can only happen when an economic unit (either an individual or country) has an income beyond the required for survival. When many individuals have to consume all their income to survive, the economy is unlikely to grow. In this perspective, foreign aid, therefore, can be a vital input to supplement those low accumulations of capital and act as a big push to break the poverty trap and stimulate the national economy in developing countries (Sachs 2005, 246-249).

Scholars have conducted empirical analyses and found evidence for the argument. For instance, Papanek (1973) conducted a cross-national analysis of 34 countries for the 1950s and 51 countries for the 1960s. The author found that aid is positively correlated with growth. The effect is prominent in Asia and the Mediterranean countries, where the most crucial constraint of growth is the lack of capital, mainly foreign exchange. Dowling and Hiemenz (1983) studied the aid-growth nexus for 13 Asian countries. They found a positive relationship between the two variables while controlling for the effect of trade, finance, and government intervention. Levy (1988) examined Sub-Saharan African countries and concluded that foreign aid contributes to economic growth in the region via increasing public investment. Hansen and Tarp (2001) added evidence on the positive effect of aid via the public investment by examining 56 countries between 1974 and 1993. Using a standard overlapping generations (OLG) model, Dalgaard,

Hansen, and Tarp (2004) also found a similar result, further revealing that the effect is strong in non-tropical regions.

Later, many studies confirmed this positive impact of foreign aid on economic growth by utilizing more sophisticated model specifications and methods. For example, using the generalized method of moment (GMM) estimation, Moreira (2005) found a positive relationship between aid and growth for 48 developing countries between 1970 to 1998. More recently, Arndt, Jones, and Tarp (2010) argued that aid has a positive and statistically significant causal effect on growth over the long run. Specifically, using various instrumentation strategies such as limited information maximum likelihood (LIML), they found that the expected return to an average annual aid inflow equals 5% of GDP over the period 1970-2007. Such an aid inflow is expected to increase the average annual economic growth rate by around 1.5%. Galiani, Knack, Xu, and Zou (2016) investigated 35 countries that crossed the income threshold from below between 1987 and 2010 and found an economically sizeable effect of aid on growth. In particular, a one percent increase in the aid to GNI ratio decreases the annual real growth rate in GDP per capita by approximately 0.35. In sum, those studies theorized that aid could lead to the economic growth of the recipients by increasing the capital accumulation and provided empirical evidence supporting the arguments.

2.2.2. Negative Effects of Aid on Growth

In contrast to the findings of the positive relationship between foreign aid and economic growth, another group of scholars asserts that foreign aid does not necessarily increase domestic resources of the recipient countries and suggests five reasons why aid does not work (Friedman 1958; Bauer 1972; Werlin 2005; Easterly 2006; Collier 2007; Moyo 2009). First, the money simply could be wasted on the personal spending of the leaders and government officials.

Second, it could encourage corruption, not only in aid projects or policy but also in more broad ways, such as subsidizing unplanned industries or regions. Third, it could undermine the incentives for the private sector to invest or to improve its productivity. For example, aid can also cause currency appreciation, undermining the price competitiveness of the production of all tradable goods (known as the Dutch diseases).³ In addition, if not managed appropriately, food aid can reduce the prices and hurt the income of the agriculture industry of the recipients. Fourth, aid flows can reduce domestic savings of both private (through its impact on the interest rate) and government (through its impact on government revenue). Fifth, it can help bad governments keep in power, which makes them be reluctant for meaningful reform and perpetuate poor economic policies (Radelet, Clemens, and Bhavnani 2005, 2).

Turning to empirical evidence, Griffin and Enos (1970) are the first ones to report the negative correlation between aid and growth in 27 recipient countries. Since then, many other studies have followed, showing similar results (Mosley, 1980; Dowling and Hiemenz, 1982; Singh, 1985). For example, Boone (1995) examined 96 countries between 1971 and 1990 and found that aid is not related to saving or labor productivity, which are major contributing factors to growth. Based on the evidence, he concluded that aid programs do not help the economy. Similarly, Remmer (2004) investigated the impact of aid on the fiscal policy of the recipient governments. By using panel data for the period between 1970 and 1999, the author found that aid increases the size of government. However, it does not necessarily promote the efficient use

³ According to Ranis (2012, 9), “a county generally experiences appreciation of the real exchange rate as it industrializes, and long-run appreciation of the real exchange rate is driven by a rise in productivity, output, and incomes. However, appreciation resulting from aid inflows is different: aid causes an immediate appreciation of the exchange rate before increasing productivity and output. This appreciation can have harmful effects resulting from a potential decline in exports, and the fact that aid finances a level of consumption and investment that is higher than the country's economic output would permit.”

of the revenue. Specifically, he argued that aid makes governments not only increase ineffective public spending but also reduce the willingness for revenue generation.

Moyo (2009), in her book, *Dead Aid*, argued that foreign aid is easy money that fosters corruption and distorts economies, creating a culture of dependency and economic laziness, after examining the aid practice in the Africa region. Many examples are shown, including Mobutu Sese Seko from the Democratic Republic of Congo, Idi Amin from Uganda, Bokassa from the Central African Republic. Later, Feeny and De Silva (2012) also found that aid hurt growth in recipient countries and questioned what constraints limit aid effectiveness. Then, they came up with some ideas, named “absorptive capacity constraints (ACCs).” ACCs consist of capital constraints, policy and institutional constraints, macroeconomic constraints, donor practices, and social and cultural factors, which ultimately limit the government’s capacity to absorb aid money to their economy. To summarize, those opponents of aid argue that aid does not necessarily facilitate the recipient countries’ growth because the aid is often wasted and misappropriated.

2.2.3. Conditional Effects of Aid on Growth

The third school of thought emphasizes that the effectiveness of aid is conditional, which depends on various circumstances of the recipient countries (Mosley, Hudson, and Horrell 1987; Isham, Kaufmann, and Pritchett 1997; Svensson 2000b; Burnside and Dollar 2000; Collier and Dollar 2002; Kosack 2003; Dollar and Levin 2005; Islam 2003; Wagner 2014). For example, Mosley, Hudson, and Horrell (1987) found no correlation between aid and the growth rate of GNP. Then, they pointed out that the recipient countries’ economic institutions played a role in this no relationship and argued that the degree of economic and financial development of the countries impacted the efficiency of aid implementation. Specifically, the authors claimed that the underdeveloped economic system makes aid money easily leak into non-productive

expenditure in the public sector and be transmitted to the private sectors, resulting in adverse price effects on the market. Later, Burnside and Dollar (2000) examined 59 countries between 1970 and 1993, and the result showed no statistical relationship between aid and growth. Instead, they found that aid is positively associated with economic growth only in the countries implementing market-friendly economic policies, promoting trade openness and economic freedom.

Meanwhile, Wagner (2014) found that the relationship between aid and growth is nonlinear. Specifically, using data for 89 developing countries during 1970–2009, he showed that aid is effective only above a critical level and becomes detrimental to growth at a high level of aid. The study further found that recipient countries' economic stability modifies the threshold of the aid inflow. That is, aid is more helpful to those countries where are economically vulnerable and unstable. Relatedly, Rahnama, Fawaz, and Gittings (2017) found that foreign aid harms economic growth in low-income developing countries, while it positively affects growth in high-income developing countries by examining 55 low-income and 56 high-income countries from 1970 to 2010.

On the other hand, other scholars underlined its political context. For instance, using data on 58 countries between 1970 and 1993, Svensson (2000b) found that aid on growth, especially for long-run growth, is conditional on the degree of political and civil liberties of the recipient country. Mainly, he showed that aid has a positive impact on growth in countries with an institutionalized check system on governmental power, that is, in more democratic countries. Similarly, Islam (2003) also found that aid has a positive impact on growth in a politically stable regime (under a totalitarian/tyrant regime than under a tinpot regime) by looking at 33 countries

(21 African and 11 Asian countries) between 1968 and 1992.⁴ In short, despite the different aspects the studies pointed out, the last school of thought shares the view that the effectiveness of foreign aid varies among the recipient countries.

2.3. Theory: Foreign Aid, Winning Coalition, and Economic Growth

So, does foreign aid help the economic growth of the recipient countries? As shown in the previous section, the findings of the existing studies are inconclusive, and the debate is still ongoing. Proponents of foreign aid focus on supplying more capital to the economy and its positive effect on economic growth, whereas opponents emphasize its malfunction and corruption and its harmful effects on growth. However, the economic effects of foreign aid can vary over time and region due to the different political conditions of each recipient country. The same amount of foreign aid to two different countries can have completely different results because aid in one country can go where it is supposed to be, while aid in another country may not be used for the intended purpose.

This essay argues that these different ways of spending aid come from the political leaders' survival strategy. The fungibility of aid allows the leaders to use the money for their political gains. Specifically, to maximize the chance to stay in office, governments in the case of

⁴ The author argued that the aid effect on growth among authoritarian countries varies depending on the different rational policy decisions. The distinction between a weak and a strong authoritarian regime depends on their objectives and the levels of repression and loyalty used to achieve them. Wintrobe (1990, 1998) distinguished four different types of an authoritarian regime – timocrats, tinpots, totalitarians, and tyrants. The main objective of a timocrat or a benevolent despot is to maximize public welfare. To achieve this objective, the timocrat uses a minimum level of repression and generates maximum loyalty. Tinpots seek personal consumption and avoid unnecessary spending on repression or generating loyalty to maximize consumption. Both timocrats and tinpots are weak forms of dictatorship. Totalitarians look for maximum power. They use highly repressive measures but at the same time use as much of national output as are necessary to increase economic growth, thereby generating sufficient loyalty required to stay in power. Tyrants also look for maximum power and use maximum repression but do not rely upon institutions that allow them to generate enough loyalty (Islam 2003, 36-37).

a large winning coalition spend the aid money as it is intended for, providing public goods, which is conducive to economic growth. On the other hand, in the countries in the case of a small winning coalition, the money is spent as private goods and wasted and thus less effective on growth.

2.3.1. Fungibility of Foreign Aid

In principle, foreign aid should help the recipient economy because these assistances aim to provide the country's primary economic and social infrastructure. However, as shown in the existing studies, not all aid recipients achieve the desired goal: aid effectiveness on economic growth differs among the recipients. The reason is that aid money is fungible, and it is rare that the aid money entirely goes into where it is supposed to be.⁵

Ideally, for the theoretical causal mechanism between foreign aid and economic growth to work, as the proponents of aid argue, foreign aid should be reflected directly and entirely in the government budget and public spending (Wright and Winters 2010). That is, aid is spent entirely in non-fungible ways. However, that is not what happens in reality. Aid is routinely spent in fungible ways, and the degree or extent of it varies among the aid recipient countries and governments.

For example, some countries used foreign aid mainly in the way the donor countries and international aid agencies intended, such as government consumption and investment in

⁵ Aid is fungible, by definition, if the recipient country uses the aid resources for purposes other than those intended by the donor (McGuire 1978). This fungible aid usage is distinctive from other external capital inflows (Singer 2010; Leblang 2011). In specific, compared to tax revenue, spending aid is less binding and accountable for the political leaders and governments because it is not collected from their citizens. Additionally, comparing to FDI and personal remittance, spending aid is more controlled by the leaders and officials because the money mostly goes to or needs the permission of the recipient governments to be spent. In this regard, aid is 'unearned income and freer resource (in other words, 'non-tax but directly allocated government revenue'), allowing political leaders and governments to use it in fungible ways.

education, public health, and poverty reduction. Gupta (1993) found little evidence of the fungible usage of foreign aid across development expenditure in India during the 1970s-1980s. Pack and Pack (1990) also found that in Indonesia during 1966 and 1986, foreign aid raised the total amount of the public expenditure. Most of the aid was spent to provide the economic and social infrastructure of the country.⁶

However, as mentioned earlier, aid money is highly fungible, and we see many cases the money was used in various fungible ways (McGillivray and Morrissey 2004). The government simply pockets the money and keeps it for themselves or distributes some of them directly to its supporters as a form of private goods. Mobuto Sese Seko (The former President of Zaire from 1965 to 1997) was just one of the wrong behaving leaders who reportedly looted the foreign aid money for his own private interests and enjoyed his luxurious life for decades while droving the people into poverty (Arvin 1998, 1; *New York Times*, June 22, 1997).⁷

Alternatively, the government officials and policy practitioners steal the aid and channel the money to subsidize and fund their key industries or businesses, for which is not supposed to go. A large portion of developmental aid in Pakistan was “re-appropriated” by the government towards other projects where their political priorities, which leads to an inefficient aid allocation (Rana and Koch 2020, 7-8). Khilji and Zampelli (1994) also found that the government in Pakistan transferred US military and non-military assistance to fungible resources by showing that private sectors absorbed 74% of the total aid. Even the remaining 26% went to another public spending which was not planned to be allocated. In addition, during the late 1990s in

⁶ Those cases indicate that aid helps provide public goods of the recipient countries, which is ultimately conducive to their economy. In fact, the average growth rate is 4.2% for India (the 1970s-1980s) and 6.4% for Indonesia (1966-1986) (World Bank).

⁷ In this case, the fungible usage of aid money reduces the effectiveness of aid on their national economy.

Rwanda, the urban elites, including the military and political elites, took many development projects, such as the reconstruction of Kigali airport (EU\$ 5.5 million), maintaining roads (EU\$ 24 million), health and education, and justice reforms (EU\$ 140 million) from EU aid, for their private gains and benefits (Willum 2001, 111-112).

2.3.2. Fungibility and Political Usage

By bringing the fungibility of aid into the discussion, I explain the effectiveness of aid on growth from the political economy perspective.⁸ That is, how and where to spend aid is a result of the political leaders' considerations, which reflects the power structure of the society. It is worth mentioning that Easton (1965) already pointed out that foreign aid, in contrast to other types of income, is deeply political because it is an authoritative allocation of values for a society. It is important because it gives an insight into whether and how aid can ultimately promote or harm the economy of the recipient countries. If a county uses all of the aid precisely as it is intended for, the aid should help their economy, while if the country wastes all of them for other purposes, the aid is not helpful to their economy. In other words, the degree or proportion of this fungible usage of aid matters, making the difference of effectiveness on its economic growth.

2.3.3. Winning Coalition and Public versus Private Goods Provision

What motivates the fungible use of aid for political leaders, and to what extent do they spend the money in this manner? I argue that each political leader faces different degrees of political constraints and adopts different political and economic strategies to stay in power, and it makes the difference on how and where to spend aid. In a society requiring inclusive support from their

⁸ "Political Economy Analysis is concerned with the interaction of political and economic processes in a society: the distribution of power and wealth between different groups and individuals, and the processes that create, sustain, and transform these relationships over time (OECD DAC, cited in DFID, 2009, 1)."

people for political survival, the leader would spend the aid as public goods to secure the support. In contrast, in a society relying on a small group of people, the leader would spend the aid as private goods for their supporters. The rationale behind this argument is based on selectorate theory.⁹

The fundamental assumption of the theory is that governments want to survive in office, and the key strategy for this is to keep their supporters and reinforce their loyalty. To do so, the survival-driven governments aim to convert some portion of the money and resources they have to some forms of public goods or private goods or both and distribute them to their supporters. The leaders always prefer using private goods to using public goods. However, the domestic institutional characteristics constrain the choice (Bueno de Mesquita and Smith 2009; Morrison 2009; Licht 2010).

For example, in the case of a small winning coalition, the government leader would like to survive by providing them with private gains to keep the loyalty. Because the leader only needs a small group of supporters to stay in power, it is easier and safer to give direct and private benefits to their supporters.

On the other hand, in the case of a large winning coalition, the government leader would like to survive by providing public goods to maintain the support from a large group of citizens. It is more efficient than providing private goods because everyone in society can benefit from

⁹ The selectorate theory offers a simple but insightful account of how leaders gain and retain power. Bueno de Mesquita et al. define a selectorate as “the set of people with a say in choosing leaders and with a prospect of gaining access to special privileges doled out by leaders.” In order to secure their rule, leaders must maintain a ‘winning coalition.’ This coalition comprises the minimum group of people from within the selectorate whose support is required to maintain power, given the prevailing rules and norms of a particular regime. Leaders maintain their winning coalitions through the distribution of various ‘goods,’ broadly defined. Therefore, the size of the winning coalition will dictate the strategies an actor will employ, given their desire to remain in power. Where the form of the winning coalition shifts, so too will the strategy necessary to maintain it (Bueno de Mesquita et al. 2003).

providing any unit of public goods without diminishing the enjoyment of others driven from the same unit. The relative price of doing so falls compared to buying support with private goods transfers, as the size of the coalition that the government leaders have to build to stay in power increases (Bueno de Mesquita et al. 2003).¹⁰ As a result of the necessity to provide better and sufficient public goods, the governments with large winning coalitions are expected to implement efficient public and economic policy (Kimball 2010).



2.3.4. Historical and Empirical Evidence of Winning Coalition and Provision of Public Goods

Several historical cases are showing this practice, and one of the exemplar cases is Leopold II (1835 – 1909), who was a king of Belgium (a large winning coalition) and ruler of the Congo Free State (a small winning coalition). When Leopold II succeeded to the Belgian throne, the Belgian depended on a reasonably large selectorate, which limited his political discretion power and led to adopt many democratic institutions and policies in Belgium. During his reign, he promoted universal adult male suffrage in free and competitive elections, extended public works programs, reduced taxes on basic foodstuffs (Bueno de Mesquita et al. 2003, 323-333).

However, in ruling the Congo, where the winning coalition was minuscule, he relied only on himself and turned his pull effort to generating private goods for himself and his supporters. He showed no hint of benevolence to extract slave labor for producing ivory and rubber to

¹⁰ A similar logic can be found in international economic and trade policy literature on the concentrated interest group versus dispersed public interest. Those studies found that trade policymakers tend to reflect the voice of the concentrated interest groups better than the voice of the dispersed public interest, even though the size of the public is much larger than that of the concentrated interest groups (See Heo and Horowitz 2001).

become rich. In particular, as demand for rubber grows, Leopold imposed rubber quotas and created *Force Publique* (a “police” force that was paid a low salary but augmented its wages with commission) to meet the quota. The *Force Publique* was given unrestricted means, including chopping off right hands, torture, and murder of slave labor. With this wild power, they ended up killing at least ten million slaves. In that way, only Leopold and his supporters became wealthy and virtually invested nothing to improve the country, unlike Belgium (Bueno de Mesquita et al. 2003, 323-333).¹¹

Empirically, Bell (2011) confirmed the theory by applying a panel data analysis for 15 public goods. The author found that leaders who must satisfy large winning coalitions increase their allocation of government resources toward education, health, and welfare as their regimes are consolidated. Then, it decreased as the winning coalitions become small. Recently, using district-level data for Tanzania, Bueno de Mesquita and Smith (2017) also found that leaders in the districts with small winning coalitions emphasized providing private goods such as cash vouchers. In contrast, leaders in large winning coalition districts focused more on public goods such as better health care access. Furthermore, using panel data for 155-180 countries from 1972 to 2007, McGuire (2013) showed that the winning coalition size is related to the infant mortality rate. Based on the findings, he argued that the larger winning coalition is better for the citizens’

¹¹ Bueno de Mesquita, Morrow, Siverson, and Smith (2004, 375) further illustrated and contrasted the more recent examples of those two institutionally different cases. In the United Kingdom (a large winning coalition), the political leaders pursued adopting certain policies and legislation for their winning coalition regardless of their political preference. The members of the coalition received few and modest private benefits from it. Prime ministers of the Conservative party, for example, tended to promote tax legislation that favors their core voters, while prime ministers of the Labor party promoted welfare legislation. In contrast, in North Korea (a small winning coalition), Kim Jong-il was just concerned to keep critical military leaders, close, loyal relatives, and essential bureaucrats taking up somewhere between 250 and 2,500 out of 20 million citizens. Therefore, it is much easier for the leader to distribute direct and private benefits for his core supporters to keep their loyalty and no need to provide public goods to the ordinary people. According to the authors, the leader requires US\$ 1.2 billion to sustain himself in the office out of the approximately US\$ 12 billion (North Korea's GDP), and each of the winning coalition members can receive about US\$ 500,000 where the income per capita is only around US\$ 600.

well-being because it makes the governments provide more public goods than the smaller winning coalition.

These historical and empirical cases prove that the political leaders who are driven for political survival act following the incentives created by the institutions they face. Their behaviors are radically different in each society. The sizes of a society's selectorate and winning coalition influence the leaders' decisions over where and how much spend government resources. Leaders who rely on a large coalition emphasize providing public goods that enhance social welfare, while those who rule with the support of a small group of cronies are less likely to provide those goods. In sum, the winning coalition size matters in how governments allocate their money and resources to keep their power, which has economic consequences. The larger the winning coalition sizes, the more the leaders tend to provide public goods.

2.3.5. Foreign Aid, Winning Coalition, and Economic Growth

Those theoretical and empirical studies of the selectorate theory, particularly the winning coalition and the provision of public goods, give the insight to explain the effectiveness of foreign aid on economic growth in twofold: (1) foreign aid for political survival and (2) the provision of public goods for economic growth.

2.3.5.1. Foreign Aid as a Resource of Political Survival

The primary concern for all government leaders is to keep their office, not to improve the well-being of the entire citizens sincerely. In this sense, aid is not necessarily helpful to develop the economy and alleviate poverty unless they have to do it for their political survival (Bueno de Mesquita and Root 2002). Thus, although donor countries and international society provide foreign aid to help the recipient countries to promote the economic and social welfare of their

citizens, the fungibility of aid allows the leaders and government officials to do just the opposite for their own political interests (Bueno de Mesquita and Smith 2009). Aid, as an unearned and freer income, increases the possibility of office holding and regime stability by spending the money to provide rents and patronage to the members of their winning coalition (Ahmed 2012; Nieto-Matiz and Schenoni 2018).

In large winning coalition societies, any newly coming and free incomes and resources, including foreign aid, are turned toward providing additional public goods and services to shore up the support and keep the office (Cao and Ward 2015). On the other hand, in small coalition societies, many of these free resources are used by and for the leaders' private goods. In this case, those resources do not flow to public spending, and the political leaders predominately use them as private rewards for their coalition members (Bueno de Mesquita and Smith 2009; Licht 2010). That is, in small winning coalition societies, aid helps leaders increase the payoff to the small group of cronies while severely reducing the provision of public goods (Bueno de Mesquita and Smith 2009).

Relatedly, Boon (1996) also found that the size of political elites matters for how a recipient government spends foreign aid. To maximize their political survival, the political leader uses distortionary financing power and transfers the aid money to their elites as private goods. Thus, countries with a small size of political elites use foreign aid to increase private transfers to the elites. In contrast, more representative and inclusive countries use aid to increase public goods, which leads to lower taxes and higher investment and income.

2.3.5.2. *Public Goods and Economic Growth*

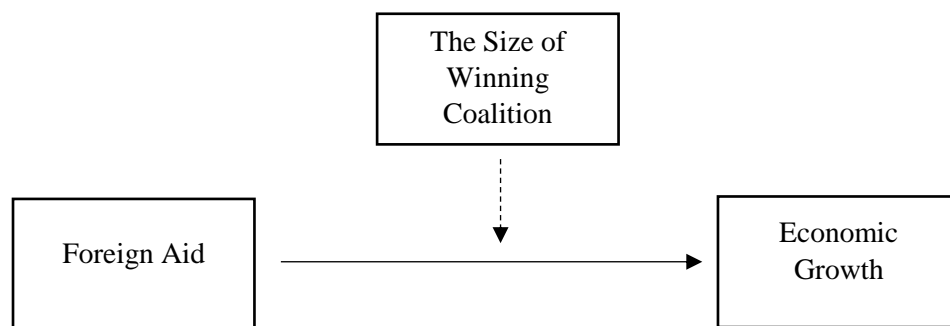
The provision of efficient and sufficient public goods, which is one of the distinctive roles of a government as well as the primary aim of foreign aid, has shown to be beneficial to their economy (Clark, Poast, Flores, and Kaufman 2011; Taydas and Peksen 2012; Rahnama, Fawaz, and Gittings 2017). In principle, the provision of public goods, such as access to safe drinking water, sanitation, transport, medical care, and school, is essential for individual well-being (Besley and Ghatak 2004). Accordingly, it improves the quality of the labor force and enhances human capital stock, which eventually leads to the productive economic capacity of the county. Moreover, providing public goods also stimulates private investment and capital inflow (Lucas 1988). For example, constructing economic and social infrastructure can attract foreign investment and increase international transactions with the recipient countries by making them a market-friendly environment, contributing to economic growth.



There is ample empirical evidence of these positive roles of public goods on the economy. For instance, ‘core infrastructure’ – streets, highways, airports, mass transit, and other public capital – was proven to have the most explanatory power for private sector productivity in the United States from 1949 to 1985 (Aschauer 1989). During 1970 and 1988, public investment in transportation and communication in developing countries also led to higher economic growth (Easterly and Rebelo 1993). Furthermore, Liu, Wang, Zhang, Li, Zhao, and Li (2017) showed a significant positive correlation between investment in public goods and regional economic development using the data of 31 provinces in China from 2007 to 2014. Similarly, the case of

India also showed that the quality of public goods, such as quality of air, water, education, and electricity, is closely associated with the level of income and human development (Singh 2015). In sum, the empirical evidence confirms that the adequate provision of public goods is a precondition for the essential quality of life, economic growth, and inclusive development.

Taken together, I argue that foreign aid, as not only an additional but also a less accountable source of government revenue, is likely to reinforce the existing patterns of government spending. Governments in the case of large winning coalitions are more likely to spend it as public goods, while governments in the case of small winning coalitions are more likely to spend it as private goods. The economic consequence is that foreign aid is more effective for economic growth in the society of large winning coalitions because the money is spent more as intended. On the other hand, it is less effective in the society of small winning coalitions because it is spent more as private goods.



Based on the discussion, I hypothesize: the effect of foreign aid on economic growth is conditional on the winning coalition size of the recipient governments. Specifically, as the size of winning coalition increases, foreign aid leads to a higher economic growth rate.

2.4. Empirical Analysis

2.4.1. Model Specification

The dependent variable in this study is economic growth measured by the percentage change of gross domestic product (Growth). The main independent variables are foreign aid (ODA), the size of winning coalition (WC), and its interaction term (ODA*WC). Particularly, the interaction term is included to test the conditional effect of the size of winning coalition on the relationship between foreign aid on economic growth, as the theoretical argument of this essay suggests. I expect that the coefficient of the interaction term is positive because the size of winning coalition increases aid effectiveness.

Then, I also included several control variables, which are significant determinants of growth and utilized in many aid-growth studies (Burnside and Dollar 2000; Hansen and Tarp 2001; Collier 2007; Bangergee and Roy 2014; Wagner 2014; Mohapatra, Giri, and Seharawat 2016; Adeola 2017; Yonsi, Khemili, and Bechitini 2019): GDP per capita (GDP), gross fixed capital formation (CF), population growth (PG), trade openness (TO), government expenditure (GE), education attainment (EA), inflation (IF), and assassinations (AS).¹²

In specific, GDP per capita is included to capture the size of the economy. Gross fixed capital formation is included to account for investment in physical capital. Population growth is included as an indicator of the growth of the labor force. Trade openness is included to capture the importance of international factors such as the use of advanced technologies among the trading countries, thereby increases growth. Government expenditure is included to capture the extent of public goods provided by the government. Education attainment is included as a proxy

¹² These control variables are chosen based on a neoclassical growth model. The basic argument of this model is that the economic growth of a country can be explained by looking at capital accumulation, labor or population growth, and productivity improvement.

for human capital. Inflation is included as a proxy for the stability of the macroeconomic and business environment. Lastly, assassination is included to capture the political instability. Thus, the model is constructed as follows:

$$\text{Growth}_{it} = \beta_0 + \beta_1 \ln \text{ODA}_{it} + \beta_2 \text{WC}_{it} + \beta_3 \ln \text{ODA}_{it} * \text{WC}_{it} + \beta_4 \ln \text{GDP}_{it} + \beta_5 \ln \text{GC}_{it} + \beta_6 \ln \text{CF}_{it} \\ + \beta_7 \text{PG}_{it} + \beta_8 \ln \text{IF}_{it} + \beta_9 \text{TO}_{it} + \beta_{10} \text{EA}_{it} + \beta_{11} \text{AS}_{it} + \mu_i + \nu_t + \varepsilon_{it} \quad (1)$$

Where \ln denotes variables in natural logs. β_0 is constant terms. μ_i represents the country-specific effects. ν_t represents the time effects. ε_{it} represents the error term. In addition, the dataset covered all of the eligible aid-recipient countries over time (i.e., panel dataset), and the variables are indexed countries by i and years by t .

The description of the variables used in this study is below:

Growth_{it} = economic growth rate as measured by GDP growth rate (%)

ODA_{it} = the official development assistance (ODA, disbursement) share of GDP (%)¹³

WC_{it} = the size of the winning coalition as measured by 5 scales, ranging from 0 to 1, by 0.25¹⁴

¹³ Concerning how to measure aid, there are some options: the raw value of aid, aid/population, and aid/GDP. However, this study used aid/GDP for the following reasons. First, raw values are not informative due to differences in income and population between countries. One option is to scale total and received by a given country (one time) by its population size, suggesting per capita and as the “treatment” variable of interest. This is an intuitive measure and is technically appealing as many intermediate outcomes are expressed in population terms (e.g., average years of schooling, life expectancy). Nevertheless, aid/population has specific limitations compared to aid to GDP (aid/GDP), which has been more commonly used in the literature to date. First, it is hard to give a sensible or straightforward interpretation to any estimated effect of aid per capita on key macroeconomic outcomes, where variables are often measured in terms of or scaled by GDP. For instance, suppose we find that an inflow of US\$ 10 of aid per capita causes the GDP growth rate to rise by one percentage point. Although this may be of interest per se, the problem is that the implied benefit-cost ratio is ambiguous because it depends on the initial size of the economy. Second, it is reasonable to assume that the actual cost of providing a given flow of public services, such as education, tends to increase with GDP. Thus, especially over extended time frames, the relative purchasing power of aid over a wide range of outcomes is best considered in economic terms, not population terms (Arndt, Jones, and Tarp 2015, 9).

¹⁴ The size of the winning coalition, WC, is measured as described in *The Logic of Political Survival* (Buono de Mesquita et al. 2003). WC ranges from 0 (smallest winning coalition) to 1 (largest winning coalition), and it consists of four components, each being worth 0.25 of the aggregate score. 0.25 is added to WC for each of the following conditions: (i) the regime is neither a “military” nor a “civilian-military” regime as coded by Banks (2007); (ii) candidates for executive office are chosen via dual executive election or open election (Polity IV “xropen” > 2); (iii) executives are chosen via competitive elections (Polity IV “xrcomp” > = 2); and (iv) elections are typified by free

GDP_{it} = total amount of GDP per capita

GC_{it} = total amount of government consumption expenditure

CF_{it} = the domestic gross capital formation share of GDP (%)

PG_{it} = population growth rate (%)

IF_{it} = inflation rate (%)

TO_{it} = trade openness as measured by the total amount of import and export share of GDP (%)

EA_{it} = education attainment as measured by the average years of total schooling

AS_{it} = the number of assassination

2.4.2. Data

The dataset is constructed as a panel structure with country-year observations for 82 aid-recipient countries covering 1960 and 2010. Most of the economic variables – Growth (GDP growth, annual %), GDP (per capita), Government Consumption (government consumption expenditure), Capital Formation (gross capital formation, % of GDP), Population growth (annual %), Inflation (annual %), Trade Openness (calculated using exports and imports data, % of GDP) were taken from the World Bank’s World Development Indicators (WDI). Data on ODA were obtained from OECD statistics (measuring total receipts by country, disbursement). Data on the size of winning coalition were obtained from Banks (2008) and Cheibub, Gandhi, and Vreeland (2010) (regime type) and Polity IV dataset (elections). Lastly, data on education attainment (average years of total schooling) were taken from Barro and Lee (2018), and data on assassinations were from Bordea, Elbadawi, and Houle (2017), respectively. The descriptive statistics of the variables studied in this analysis were presented in Table 1.

and noncoerced competition of regularly active political groups (Polity IV “parcomp” = 5). More information about these components is available in Banks (2007) and Marshall and Jagers (2002).

Table 2.1: Descriptive Statistics

VARIABLES	Mean	SD	Min	Max
Growth (%)	4.109	7.221	-64.05	150.0
ODA (% GDP)	7.713	64.49	-592.9	2,796
Winning Coalition	0.456	0.257	0	1
GDP (per capita)	5,757	10,589	115.8	114,161
Government Consumption	1.373e+10	3.924e+10	730,983	7.820e+11
Capital Formation	22.84	11.44	-5.740	219.1
Population Growth (%)	2.113	1.592	-10.96	17.70
Inflation (%)	39.44	530.8	-35.84	24,411
Trade Openness	78.23	51.76	0	531.7
Education Attainment	4.809	2.768	0.0400	12.32
Assassination	0.208	1.039	0	26
Log ODA (% GDP)	0.856	1.613	-8.705	7.936
Log GDP (per capita)	7.768	1.299	4.752	11.65
Log Government Consumption	21.66	1.904	13.50	27.39
Log Capital Formation	3.033	0.468	-1.228	5.389
Log Inflation (%)	1.901	1.339	-4.191	10.10
Log Trade Openness	4.165	0.684	-3.863	6.276

2.4.3. Methods

The dependent variable is ‘dynamic’ – that is, the past realization of dependent variables might also affect current year performance. For example, it may not be the current year’s foreign aid that affects economic growth, but rather the previous year’s aid could play a significant role in economic growth. Thus, to capture this characteristic of the panel dataset, I have employed the GMM (Generalized Method of Moments) estimation technique, which Arellano and Bond (1991) and Blundell and Bond (1998) developed.¹⁵ This GMM technique uses lags of the dependent

¹⁵ Arellano and Bond (1991) firstly proposed using the difference GMM estimation. This estimator removes the fixed effects by transforming the data and uses lagged values of the dependant variables as instruments to addresses the endogeneity issue. In a later study, Blundell and Bond (1998) showed that the difference GMM performs poorly, especially when the variables are close to a random walk - the lagged levels are not solid instruments for first differenced variables. Moreover, when the number of time periods is small and the dependent variable is highly persistent, the difference GMM may cause the sample bias (Alonso-Borrego and Arellano 1999). The system-GMM estimator improved the efficiency by using both lagged levels as well as lagged differences and system-GMM estimators to ascertain the robustness of the results. Also, in the system GMM, time-invariant variables can be considered regressors such as distance and common religion in the model.

variables as explanatory variables, and the lagged values of the dependent variables serve as instruments to control this endogenous relationship. By doing so, GMM estimators can provide consistent results in the presence of various sources of endogeneity, “unobserved heterogeneity, simultaneity, and dynamic endogeneity (Wintoki, Linck, and Netter 2012, 588).”¹⁶ For this reason, I applied the two-step system GMM estimation as the most reliable one in dealing with these sources of endogeneity in addition to the one-step system GMM.¹⁷

In order to model the dynamics of aid-growth relations and account for persistence in growth rate, one year lagged dependent variable is included as an additional independent variable and is used as the instrument. Accordingly, the final model specification for this dynamic dataset is given by:

$$\text{Growth}_{it} = \beta_0 + \theta \text{Growth}_{it-1} + \beta_1 \text{lnODA}_{it} + \beta_2 \text{WC}_{it} + \beta_3 \text{lnODA}_{it} * \text{WC}_{it} + \beta_4 \text{lnGDP}_{it} + \beta_5 \text{lnGC}_{it} + \beta_6 \text{lnCF}_{it} + \beta_7 \text{PG}_{it} + \beta_8 \text{lnIF}_{it} + \beta_9 \text{TO}_{it} + \beta_{10} \text{EA}_{it} + \beta_{11} \text{AS}_{it} + \mu_i + \nu_t + \varepsilon_{it} \quad (2)$$

Growth_{jt-1} represents the growth rate of country j in period $t-1$, and all of the other variables are the same as described in equation (1).

¹⁶ “There are two kinds of the methods, known as one-step GMM and two-step GMM, depending on how to transform the data (which means a statistical process where a variable's past value is subtracted from its present value, Roodman 2009, 86). However, one-step GMM, which uses the first-difference transformation, has some limitations. For instance, if a variable's current value is missing, then the first-difference transformation could result in the loss of too many observations (Roodman 2009). To avoid this potential data loss, Arellano and Bover (1995) recommended the use of a second-order transformation (two-step GMM). This two-step GMM subtracts the average of all future available observations of a particular variable instead (Roodman 2009, 86). Using a two-step GMM, researchers can prevent unnecessary data loss, so that in the case of a balanced panel dataset, a two-step GMM model provides more efficient and consistent estimates for the involved coefficients (Arellano and Bover 1995) (Ullah, Akhtar, and Zaefarian 2018, 71).”

¹⁷ The problem may be addressed using instrumental variables. However, finding proper instrumental variables is complicated and sometimes impossible (Antonakis, Bendahan, Jacquart, and Lalive, 2010; Antonakis and House, 2014). The fundamental problem of the instrumental variable approach is the identification of the models due to the high complications such as not having sufficient data, high correlations of instrumental variables, and deficient order and rank conditions (Bentler and Chou 1987; Martens and Haase 2006). Also, researchers should have solid theoretical arguments to build the directions of hypotheses and models for using specific instrumental variables.

Concerning the robustness check of the estimation technique for the empirical test, I implemented other techniques as well: OLS (Ordinary Least Squares) with PCSE (Panel Corrected Standard Error), random and fixed effect analysis. The results of these estimations are also presented in the following results sections.

2.5. Results and Discussion

The results are presented in Table 2: OLS with PCSE, Random and Fixed effect,¹⁸ one-step and two-step system GMM. First, aid (ODA (% GDP) (log)) itself has a negative and statistically significant effect. Meanwhile, the winning coalition's size has no significant effect on economic growth across all of the model specifications. More importantly, the interaction between those two variables (ODA*WC), which is the main theoretical concern of this paper,¹⁹ is also positive and statistically significant across all of the columns: the coefficients lie in a range from 0.74 to 2.25.²⁰ This result implies that for the short term, the conditionality of foreign aid and the size of the winning coalition together makes the difference in the effectiveness of the recipients' economic growth. Specifically, a one-unit increase in the size of winning coalition (for a given level of aid) enhances the positive impact of ODA on growth. In other words, the bigger

¹⁸ Concerning the appropriateness of using fixed-effect over random-effect dealing with unobserved heterogeneity in the panel dataset, this paper performed the Hausman test. The result ($p < 0.000$) implies that using fixed-effect is preferable because some individual characteristics in the panel dataset do not change over time, affecting the dependent variable.

¹⁹ My theoretical prediction on the conditional effect of winning coalition size is that with increasing winning coalition size, the recipient government is more likely to spend foreign aid as public goods, which I assume to be beneficial to the economic growth. In other words, foreign aid is more likely to help the economy, that is, to achieve a higher economic growth rate in countries with larger sizes of winning coalitions.

²⁰ Also, it is important to point out that when the interaction term is disordinal and statistically significant, the main effects (here, foreign aid and the size of winning coalition) are not interpretable and misleading, unlike the case of ordinal interaction (ordinal interactions have lines with different slopes but they do not cross, while disordinal interactions have lines which cross each other).

coalition size has a facilitating effect of aid on a country's economic growth, other things are being equal.

These empirical results support the theoretical expectation, in general. There is a conditional effect of foreign aid and winning coalition on economic growth. The effect of foreign aid on economic growth is different depending on the winning coalition sizes. However, it is hard to get a realistic picture of the conditional effects simply by looking at the coefficients and standard errors of the interaction term. Testing hypotheses of interaction often emphasizes visually depicting the marginal effect of one lower-order variable at different values of the other lower-order variable in order to assess whether the marginal effect is statistically significant (Brambor, Clark, and Golder 2006; Kam and Franzese 2007). In models with interaction terms, it is also well known that the marginal effect and the associated standard errors vary with the value of the other lower-order variable (Friedrich 1982; Braumoeller 2004).

Table 2.2: Foreign Aid, the Size of Winning Coalition, and Economic Growth

	(1) OLS (PCSE)	(2) Random Effect	(3) Fixed Effect	(4) One-step System GMM	(5) Two-step System GMM
Growth _{t-1}	-	-	-	0.138*** (0.0459)	0.116 (0.0741)
ODA (% GDP) (log)	-0.704** (0.274)	-0.693*** (0.196)	-0.598*** (0.216)	-1.533*** (0.376)	-1.133** (0.554)
Winning Coalition	-0.429 (0.569)	0.102 (0.563)	0.208 (0.654)	0.161 (1.435)	-0.227 (1.763)
ODA*WC	0.737* (0.395)	0.759** (0.297)	0.992*** (0.315)	2.248*** (0.563)	1.845** (0.780)
GDP per capita (log)	-0.371 (0.256)	-0.266 (0.236)	1.125** (0.570)	-0.315 (1.321)	-0.336 (1.717)
Gov't. Consumption (log)	-0.058 (0.128)	-0.223* (0.133)	-1.892*** (0.340)	-1.230 (0.742)	-0.620 (1.068)
Capital Formation (log)	2.812***	2.952***	2.735***	4.083***	3.087***

	(0.348)	(0.344)	(0.392)	(0.784)	(1.057)
Population Growth (%)	0.369**	0.409***	0.468***	-0.902*	-0.898
	(0.150)	(0.141)	(0.163)	(0.521)	(0.783)
Inflation (log) (%)	-0.414***	-0.492***	-0.490***	-0.658***	-0.698***
	(0.096)	(0.0832)	(0.0892)	(0.159)	(0.242)
Trade Openness (log)	0.597**	0.799**	2.091***	3.208**	3.766**
	(0.260)	(0.342)	(0.479)	(1.305)	(1.865)
Education Attainment	-0.039	-0.128	-0.112	0.231	0.0413
	(0.090)	(0.0855)	(0.131)	(0.424)	(0.652)
Assassination	0.029	-0.0501	-0.00814	-0.0147	0.00488
	(0.0548)	(0.0747)	(0.0752)	(0.149)	(0.100)
Constant	-2.055	0.145	20.91***	13.13	0.00
	(2.035)	(2.805)	(5.859)	(12.23)	(0.00)
Number of Observation	2,084	2,084	2,084	2,063	2,063
R ²	0.142	0.085	0.102	-	-
Number of Country	82	82	82	82	82
Number of Instrument	-	-	-	84	84
AR(1)	-	-	-	0.000	0.000
AR(2)	-	-	-	0.669	0.848
Sargan Test	-	-	-	1611.930	1611.930

Standard errors in parentheses

*** p < 0.01, ** p < 0.05, * p < 0.1

Thus, this work proceeded to investigate the marginal effect and presented several plots, mainly based on the estimations of the two-step system GMM estimator (Column (5)) for the following reasons. First, given the growth persistency, it is more appropriate to rely on the dynamic models (equation (2)), which GMM estimators (Column (4) and (5)) can deal with. In addition, these GMM estimators better account for the other possible endogeneity issues of aid-growth relation,²¹ which satisfies the conditions for the estimators' validity: Sargan test and Arellano-Bond test for the first-order and second-order correlation.²² Figure 1, 2, and 3

²¹ That, not only aid can influence economic growth, but also economic growth can influence aid. For example, the rapidly growing economy may decrease the inflow of aid, or the staggering economy may increase the need for aid.

²² When applying the GMM model, researchers need to implement two post-estimation tests to ensure that an appropriate econometric model is applied. These tests are (1) the Sargan test and (2) the Arellano-Bond test for the first-order and second-order correlation. First, a critical assumption for the validity of GMM estimates requires that

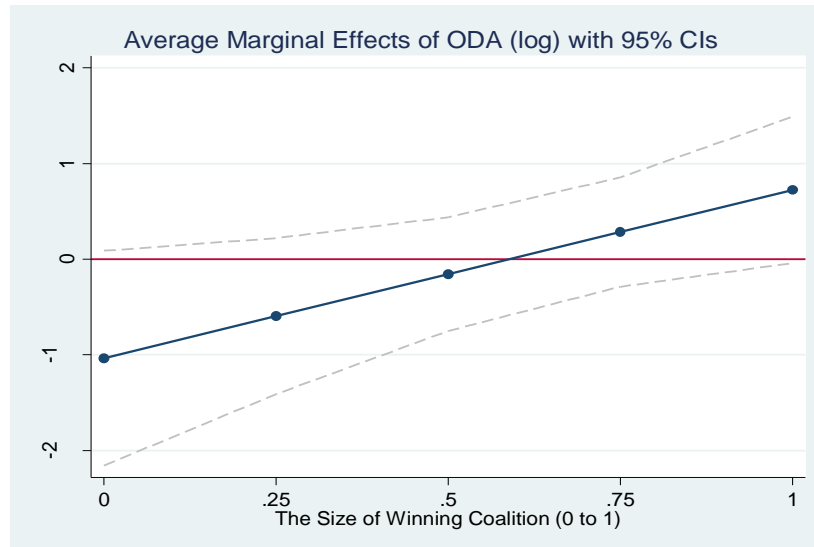
visualized these conditional effects of foreign aid and the winning coalition's size on economic growth.

First, Figure 2 presents the average marginal effects of ODA across the winning coalition's size on economic growth. The average ODA effect becomes positive as the winning coalition's size becomes larger, holding other variables at the same value, which is in the predicted direction although *marginally* significant.²³ Specifically, when the size of winning coalition is 0, the average marginal effect of ODA is -1.04 ($p = 0.07$), while when the size is 1, the effect is 0.72 ($p = 0.06$). Since only the difference is the size of winning coalition, it should be the cause of the difference in the growth rate. In other words, compared to two countries who received the same (average) amount of aid, the country in the case of a larger winning coalition has a better economic outcome than the country in a smaller winning coalition.

instruments are exogenous. In other words, the findings from GMM will not be valid if the instruments are endogenously determined. Sargan test is used to determine whether the econometric model is valid or not and whether the instruments are correctly specified or not. If the null hypothesis is rejected, the researcher needs to reconsider the model or the instruments used in the estimation process. On the other hand, if the Sargan test turns out to be insignificant, it implies that the instruments included in the econometric specifications are exogenous. Second, to examine the validity of a strong exogeneity assumption, the Arellano-Bond test for no auto-correlation (or no serial correlation) is used under the null hypothesis that the error terms for two different periods are uncorrelated. In other words, it means that the lagged variables are not correlated with the error term (Ullah, Akhtar, and Zaefarian 2018, 76). The values for these two post-estimation tests are reported in Table 2, which confirm that the instruments used in this estimation process are valid.

²³ Although both p-values cannot reject the null hypotheses at 0.05 level, which is the conventional wisdom in many social science disciplines, the result shows the predicted direction, and there could be some effects of it. Thus, it is worth further investigating (Johnson 2019).

Figure 2.2: Average Marginal Effects of ODA

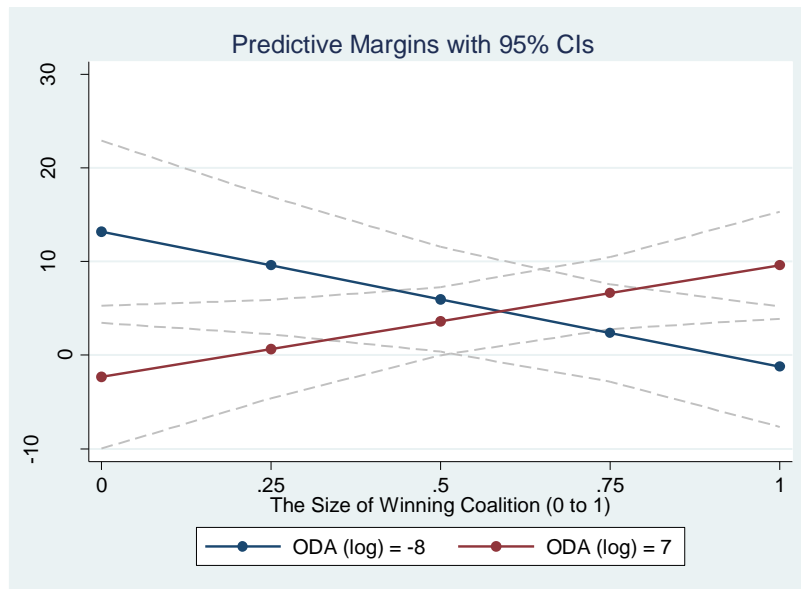


On the other hand, the amount of aid inflows into the recipients varies across countries and over time. Figure 3 and 4 show the predictive margins to depict the scenarios. For example, Figure 3 allows comparing the effect of different amounts (at the maximum and minimum) of aid across the size of winning coalition. In specific, as the theoretical argument expects, it shows that the effect of winning coalition on economic growth becomes statistically significant and positive when the amount of aid is large (ODA (log) = 7, red line). In other words, the effect is amplified as the size of winning coalition becomes larger, when the country receives a relatively large amount of aid. The marginal effects move from -2.34 ($p = 0.55$) to 9.61 ($p < 0.01$) as the size of winning coalition moves from 0 to 1 and the effect is more noticeable in the range of the winning coalition from 0.5 (3.63, $p = 0.05$), 0.75 (6.62, $p < 0.01$) to 1 (9.61, $p < 0.01$).

Similarly, Figure 4 presents the effect of the size of winning coalition across the various amount of ODA. It further shows that even when the amount of aid is at modicum level (at 2, 4, and 6), the different sizes of winning coalition work as predicted. As moving from the lower values (0 and 0.25) to the higher values of the size of winning coalition (1 and 0.75, red line), the

relationship is turned to be positive, as indicated by the upward slope lines, and statistically significant. For example, although both countries receive the same amount of 2, 4, or 6 (ODA (log)), one country in the case of large winning coalition (1) is expected to have larger and significant marginal effect (6.2, $p < 0.01$ at 2, 7.7, $p < 0.01$ at 4, 9.37, $p < 0.01$ at 6) than the other (2.5, $p = 0.06$ at 2, 0.45, $p = 0.85$ at 4, -1.68, $p = 0.62$ at 6).²⁴ Overall, these plots graphically showed that where relatively large winning coalitions, foreign aid is positively associated with its economic growth.

Figure 2.3: Predictive Margins of Growth for the Size of Winning Coalition Conditional on Foreign Aid



²⁴ These results discovered an interesting pattern, although it is not theoretically guided and expected. When a country receives a relatively small amount of ODA (-8, blue line in Figure 3 and comparison between red and blue line in Figure 4), the effect of the winning coalition size becomes the opposite. As the size of the winning coalition becomes smaller, the marginal effect becomes positive and statistically significant. It goes from -1.23 ($p = 0.71$) at 1 to 13.19 ($p < 0.01$) at 0. Similar patterns are shown in Figure 3 as well. For example, the difference of marginal effect between the coalition size effect of 0 and 1 at -8 ODA (log) is 14 (when the winning coalition is 0, the effect is 13 ($p < 0.01$), while it is 1, the effect is -1.63 ($p=0.63$) and that of effect at -4 ODA (log) is 7 (when the winning coalition is 0, the effect is 9.01 ($p < 0.01$), while it is 1, the effect is 1.51 ($p=0.43$)).

Figure 2.4: Predictive Margins of Growth for Foreign Aid Conditional on the Size of Winning Coalition



As an additional empirical analysis, the long-run impact of the conditional effect was calculated using the coefficient of the GMM estimator (this coefficient is only interpreted as the short-term effect with one year lag of the dependent variable). The result is 2.08 ($p = 0.025$)²⁵ and it indicates that a one-unit of change of the interaction terms is associated with 2.08% increases in growth rate in the long run at 5% significant level, on average, other things are being equal. Indeed, the interaction effect of aid and the winning coalition has even a more considerable impact on its economic growth in the long run (2.08) than in the short run (1.85).

Concerning the control variables, several conditions robustly show their impact on economic growth across the estimators. Domestic capital and trade openness are significantly

²⁵ This long-run effect of GMM estimator result is calculated according to the following formula: $\frac{\hat{\beta}}{1 - \sum_{j=1}^p \hat{\phi}_j}$, where

β denotes the coefficients for the variable $\log ODA * WC$, p stands for the number of lags included into the model, and ϕ denotes the coefficients for the variable lag growth (see Zuazu-Bermejo 2015, 12).

positive, while inflation is significantly negative on economic growth. On the other hand, education attainment and assassination do not show any statistical significance.

In sum, these empirical results provided evidence for the theoretical expectation of the conditional (or moderating) effect of aid and the size of winning coalition on economic growth. In the case of the large winning coalition size, the recipient government is more likely to spend foreign aid as public goods, which is beneficial for economic growth. In addition, the finding that the effect of this conditional effect becomes more prominent for the long term adds some confidence to the argument that the effect of foreign aid goes through providing public goods such as social and economic infrastructure and human capital, which takes time into effect.

2.6. Conclusion

In this essay, I presented a theoretical argument on the aid-growth nexus in a political economy perspective that focuses on the incentive and strategies of the leaders of the recipient countries for their political survival. I argued that the effectiveness of aid on economic growth depends on how to spend the money. The same amount of foreign aid to two different countries can have completely different results because aid in one country goes where it is supposed to be, while aid in another country may not be used for the intended purpose. These different spending of aid comes from the political leaders' survival strategy. In particular, to maximize the chance to stay in office, governments in the case of a large winning coalition spend the aid money as it is intended for: the provision of public goods, which helps the economy. In contrast, in the case of a small winning coalition, governments spend money on private goods and wasted; thus, aid is less effective on growth.

This theoretical argument is empirically tested with a panel dataset, 82 countries for the period between 1965 and 2010. Based on the neoclassical growth model and utilizing the GMM estimation method, this essay found evidence that supports the theoretical prediction. First, the interaction effect of foreign aid and the winning coalition showed positive and statistically significant. The effectiveness of foreign aid on economic growth is conditional on the size of winning coalition. Specifically, the effect of foreign aid becomes positive as the winning coalition's size becomes large. When the size of winning coalition is 0, the average marginal effect of the log ODA is -1.04 ($p = 0.07$), while when the size is 1, the effect is 0.72 ($p = 0.06$). Furthermore, the interaction effect of aid and the winning coalition has a more considerable impact on its economic growth in the long run (2.08) than in the short run (1.85).

These theoretical arguments and empirical findings suggest some policy directions and recommendations to foreign aid policymakers and practitioners. One crucial fact is that donors and international agencies should be aware of the diverse recipient countries' political environments, which affect the aid practices and their effectiveness. As this study showed, more inclusive and representative societies tend to have better aid practice and implementation and better economic performance. On the other hand, more exclusive and elite-centric societies tend to use and waste the money for their private interests, and, in turn, aid is less effective. This different aid effectiveness could partly explain why many people living in these countries still suffer extreme poverty even with a large amount of foreign aid. The large inflow of foreign assistance to African countries has not served its key purpose due to the poor governance and chronic social disease such as political patronage and corruption prevailing (Abuzeid 2009; Moyo and Mafuso 2017). Such a point is an important contribution of this study. Many developing countries are lagged concerning their institutional development, which should be one

of the main concerns for donors and international organizations when making aid policy decisions.

In specific, it implies that aid policymakers should avoid adopting a homogeneous aid allocation policy for all countries as much as possible. It is not to say aid organizations should abandon aid policy itself altogether but improve the nature of aid provision in countries in need. That is, careful analysis and evaluation should be geared towards finding when, where, and how aid takes place as this study found, for example, the winning coalition size affecting where the aid money goes. Second, the donor countries and international organizations should closely monitor and implement the correct allocation policies to see positive results when the money goes to poor governance and small and strong elites governing countries. It makes practical sense since aid is likely to be wasted if the channels are inefficient and ineffective.

Finally, some weaknesses of this study also need to be addressed. Concerning the research methods, this study was only able to show evidence of the conditional effect of foreign aid and the size of winning coalition on economic growth, not the relationship between foreign aid, winning coalition, and public goods provision. Thus, it would be better to empirically examine the conditional effect of foreign aid and the winning coalition on the government's provision of public goods (or private goods) first, and then, its effect on the economic growth of the recipient countries to support the theoretical argument more confidently. However, it remains as a difficult task to differentiate public and private goods in a practical sense and find and get the proper indicators of those goods to measure, especially for developing countries for now.

Chapter 3. Foreign Aid, Economic Growth, and Political Violence

3.1. Introduction

Does foreign aid deter violence in recipient countries? Political violence and conflict threaten the health and safety of millions of people around the world. Extremist terrorist groups such as ISIS in Iraq, FARC in Colombia, and Al-Shabaab in East Africa attack the governments and victimize local people. In Southeast Asia, the clashes between Buddhist-Muslim often threaten the citizens and lead governments to declare a state of emergency (Grady 2017, 1). The instability from these violent incidences prevents not only economic and social development in those regions but also undermines international peace. As a result, the prevention of political violence has been one of the top priorities of foreign aid. Hundreds of dollars annually are spent on aid programs hoping that those assistances prevent the violence, contribute to the well-being of the people in the recipient countries, and ultimately achieve global peace.

However, the existing empirical studies on the aid-conflict nexus showed mixed findings. Some found that aid help to prevent political violence in the recipient countries and insisted that it is because aid increases government capacity and capability to control the potential rebels (Burnside and Dollar 2000; Collier and Dollar 2002; Azam and Thelen 2008; 2010; Bandyopadhyay, Sandler, and Younas 2011, 2014). On the other hand, others found that aid inflow causes violence in the recipient countries and claimed that it is because aid gives more incentives for the rebellions to initiate the conflict (Grossman 1992; Azam 1995; Gershenson and Grossman 2000; Arcand and Chauvet 2001).

This essay also investigated the effectiveness of foreign aid on violence by arguing that foreign aid can help to mitigate the recipient country's political violence via its role in economic growth. In specific, I claim that the effect of foreign aid on economic growth is more prominent in a society where the political leader needs a broad set of winning coalition. Then, the growing national economy with the help of aid, in turn, strengthens the government and weakens the potential rebels, which ultimately leads to fewer political conflicts. To test the theoretical argument, I collected data on the aid recipient countries and empirically examined the relationships among foreign aid, winning coalition, economic growth, civil wars, and domestic terrorism by utilizing a moderated mediation model.

By doing so, this essay contributes to the existing literature in two ways. First, I clearly articulated the recipient countries' economic well-being, the primary purpose of foreign aid, as the mediating mechanism on their political violence, rather than the direct mechanism, which the existing literature has focused on. Second, by applying a mediated moderation model, I was able to show that the two causal processes from foreign aid and winning coalition to economic growth and from the growth to political violence are empirically significant and related to each other.

The rest of this essay is organized as follows. Section 2 reviews several pieces of relevant literature on the effectiveness of foreign on political violence. In section 3, I elaborate on the theoretical reasoning of this essay, the effect of foreign aid on political violence via its role on economic growth, which is conditional on the size of the winning coalition. Section 4 presents model specification, data, and method for its empirical analysis. Section 5 presents the findings and discusses the implication. Section 6 concludes.

3.2. Literature Review: Foreign Aid and Political Violence

The existing studies investigating the effectiveness of foreign aid on political violence have mainly focused on the direct mechanism of aid on violence: aid inflow directly changes the ability and willingness of governments and potential rebels to the conflict. Depending on which party they focus on, one group of scholars argues that foreign aid mitigates the likelihood of political violence because the money can strengthen the government's capacity to control the society and discourage potential rebels. The other group of scholars claims that aid has no effect on or even increases the risk of political violence because it can provide more incentive for the potential rebels to steal the money and resources by triggering the conflict. As both perspectives seem theoretically plausible, do the empirical analyses have shown mixed results.

3.2.1. Foreign Aid and Decrease in Political Violence

Some studies advocate foreign aid and argue that the aid can be spent directly to increase the resources of the recipient governments and enhance their ability to fight the potential challengers; thus, it reduces the risk of political violence (Burnside and Dollar 2000; Collier and Dollar 2002; Azam and Thelen 2008; 2010; Bandyopadhyay et al. 2011, 2014). For example, foreign aid can be spent to increase the governments' military and security capacity, which makes it easier for them to detect and target their potential rebel groups (Collier and Hoeffler 2002; 2007). In specific, aid inflows increase the government revenue and allow more spending on counterinsurgent activity such as buying weapons and training security officials, which can improve the ability and capacity of the governments to control the society and potential violence against them (Gurr and Moore 1997; Gurr 2000; Ezeurra and Manotas 2013).

In fact, this belief provided the rationale for many countries and international organizations to intervene with financial assistance in the ongoing conflict areas such as Yemen,

Pakistan, Colombia, Somalia, Nigeria, and the Democratic Republic of the Congo (World Bank 2012; Holmer, Bauman, and Aryaeinejad 2018; Pandith 2019). In addition, billions of aid dollars have been spent in Afghanistan and Iraq to strengthen the governments and settle the enduring conflicts (Sopko 2013; Department of the Army 2014).

Moreover, foreign aid can help the governments to gain popularity from their citizens. Governments can directly distribute the aid money to their citizens, persuade them to resist insurgent appeals, and support the government's counterinsurgency efforts. Similarly, aid can be used to encourage pro-government attitudes and reduce a rebel organization's attractiveness for new and potential recruits and resources (Berman, Shapiro, and Felter 2011; Lyall, Shiraito, and Imai 2015; Sexton 2016).

Empirically, Savun and Tirone (2011) provided evidence that aid helps recipient countries to avoid civil war. They examined all developmental aid eligible countries from 1990 to 2003. They showed that countries receiving high levels of aid to promote democracy are less likely to experience civil war than those who lack such support. Nielson et al. (2011) also investigated how aid can affect the likelihood of violent armed conflict in recipient countries during 1981-2005. They found that sudden drops in foreign aid significantly increase the likelihood of the onset of civil war, although the sudden surge of it has no apparent effect. Examining the sub-Saharan Africa region, De Ree and Nillesen (2009) also showed that foreign aid inflows reduce the duration of civil war in the region. Based on the findings, then they reasoned that it is possible because of the increased government capacity.

Several studies also examined the effectiveness of foreign aid on terrorist attacks. For example, Azam and Thelen (2008) showed that the level of foreign aid is negatively related to the number of terrorist attacks by the nationals of recipient countries, as does the recipient

country's level of education. Later, Young and Findley (2011) specifically found that aid targeted to promote education, health, and civil society effectively dampens terrorist activities. Likewise, Savun and Tirone (2018) argued that aid for governance and civil society could discourage participation and support in terrorist activity by improving the country's political conditions. Examining the aid-eligible countries from 1997 to 2010, they found that countries receiving a large amount of governance and civil society aid experienced fewer domestic terrorist incidents than countries receiving little or none.

In sum, these studies emphasized that aid inflows increase the recipient government revenue, and the governments directly use the money and resources for counterinsurgent efforts. Moreover, they provided empirical evidence that aid reduces the possibility of political conflicts such as civil wars and terrorist attacks in recipient countries.

3.2.2. Foreign Aid and Increase in Political Violence

Alternatively, other scholars offer a more pessimistic perspective by emphasizing the role of foreign aid on the potential rebels, which increases the risk of political conflict (Grossman 1992; Azam 1995; Gershenson and Grossman 2000; Arcand and Chauvet 2001). According to them, aid leads to a higher probability of conflict since it increases the incentives and potential payoffs when opportunistic rebellions succeed in controlling the government. The recipient countries are often poor and have few resources, and rebels have little to gain by capturing the government. However, the inflow of foreign aid changes the calculus and increases the attractiveness of political violence to take over the governments.

Grossman (1992) analyzed the allocative and distributive effects of foreign aid on its insurrections. He found that foreign aid indeed increases the reward associated with capturing state as well as rent-seeking incentives for the potential rebels, which eventually leads to

conflicts. In this regard, aid volatility also plays a vital role in explaining its potentially destabilizing effect. For instance, Arcand and Chauver (2001) found that the volatile aid inflows increase the risk of conflict since the volatility leads to higher uncertainty, fostering instability. Similarly, Nielsen et al. (2011) showed that a sudden decrease of aid inflow (e.g., negative aid shocks) causes the government's credibility problem to their opponent and increases the possibility of political conflict.

Knack (2001) empirically supported the argument that aid increases political violence. By investigating panel data between 1982 and 1995, the author found that both, higher levels of development aid as a percentage of GNP and total development aid as a percentage of government expenditures, decrease the quality of governance. Based on the finding, the author argued that aid inflow facilitates its political insurgency because it undermines the quality of governance in recipient countries. Relatedly, Zürcher (2017), in his review article, evaluated the relationship between development aid and civil war and articulated three main findings; (1) In most of the cases, aid was not effective in reducing conflict; (2) Aid was only effective in some areas that had already been stabilized from the conflicts; (3) Aid was even exacerbated in some areas where the money was misappropriated by violent rebel groups or when the rebels disrupted the cooperation between the local population and the government during aid projects.

Recently, Mousseau (2020) examined 147 countries between 1961 and 2008 and two case studies on Iraq and Sri Lanka and found evidence that a higher level of developmental aid increases the likelihood of ethnic war. Nielsen et al. (2011) also studied how foreign aid affects armed conflict using bilateral and multilateral aid data from 1981 to 2005. They found that in addition to aid inflows, aid shocks (severe decreases in aid revenues) also increase the probability of the onset of violent armed conflict.

Similarly, Nasr, Rehman, and Orakzai (2012) argued that foreign assistance is unnecessary to reduce terrorist attacks in recipient countries by providing evidence of Pakistan's experience. In fact, they found that during the period of war on terror (1972 – 2010), Pakistan experienced more terrorist incidents, as the amount of foreign aid had increased. Investigating the panel data of 122 countries from 1970 to 2005, Danzell, Kisangani, and Pickering (2019) also confirmed that the level of foreign aid is positively associated with all of the three indicators - the number of terrorist incidents, fatalities, and casualties.

In brief, the second group of scholars showed that foreign aid does not secure governments from conflicts and even exacerbates the risk. According to them, foreign aid increases the potential payoffs of the rebels to initiate political conflict when they succeed in destabilizing society and seize power.

These existing studies have advanced our understanding of the effectiveness of foreign aid, especially emphasizing the direct mechanism of foreign aid on political conflicts. The money can play a role in either strengthening the government's capacity to detect and fight against the potential rebels or increasing the incentive of the rebels and triggering political violence to capture the money. Although aid could affect conflicts in both ways, they seem to pay less attention to other main mechanisms: economic growth, which is the primary purpose of foreign aid. I attempt to fill the gap by arguing that aid can reduce political conflict when and if it helps the recipient country's economy. The following section provides the theoretical reasoning in detail.

3.3. Theory: Foreign Aid, Economic Growth, and Political Violence

Not all foreign aid contributes to the national economy of the recipients, even though it increases the government budget and resources of the recipients. It is because the aid comes to the country as fungible and unearned income. The political leaders often spend the money to help their survival and interests, that is, to keep and ensure their existing supporters. Specifically, where the leader needs a broad set of people to stay in power, it is more efficient for them to provide public goods and policy. In contrast, where the leader only needs a small fraction of the society, it is easier for them to provide direct and private goods and benefits to the core supporters. The implication of these different ways of aid spending on growth is that the more they spend the aid to provide public goods, the more effective it is on their economy. The growing economy, in turn, reduces the possibility of political violence. It is because the government can increase its capacity to fight against the potential violence, citizens tend to approve and support the current government, and the potential rebels lose their power and cause to initiate conflict.

Figure 3.1: Theoretical Framework

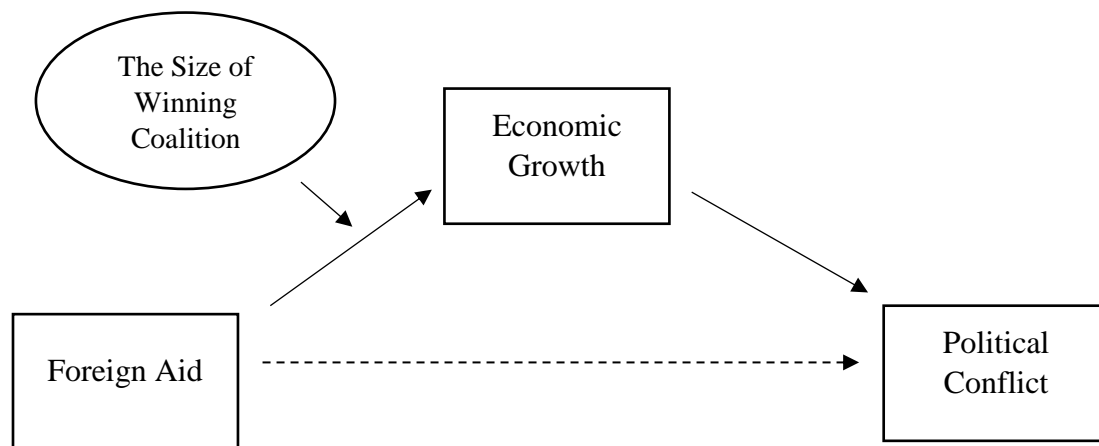


Figure 1 depicts this theoretical relationship. It shows when aid matters on the economic performance: aid is carried out under the various sizes of winning coalition, which affects its

economic performance (moderation effect). It also shows how aid matters in political conflict: as long as foreign aid contributes to economic growth, it negatively affects political conflict (mediation effect). Overall, aid reduces the probability of political conflict when it helps the economic growth of the recipient country, which is more likely to occur in the society of a large winning coalition (moderated mediation effect). The following section expounds on these several segments of theoretical rationale, respectively.

*3.3.1. Moderation Effect: Foreign Aid, Winning Coalition, and Economic Growth*²⁶

Supposedly, foreign aid should help the recipient economy because these assistances aim to improve the country's basic economic and social environment by increasing government revenue. However, not all aid helps the recipient economy, and the effectiveness of aid varies among the recipients. The reason is that aid money is fungible, and not all of the money goes into where it is supposed to go for.²⁷

Indeed, many countries and governments spend the money in various fungible ways (McGillivray and Morrissey 2004). The government literally pockets the money and keeps it for themselves or distributes some of them directly to its supporters.²⁸ The government officials and policy practitioners also steal the aid and channel the money to subsidize and fund their other industries or businesses where the aid is not supposed to go for.²⁹

²⁶ This part of the paper is a brief version of the main argument of the first essay.

²⁷ Aid is fungible, by definition, if the recipient country uses the aid resources for purposes other than those intended by the donor (McGuire 1978).

²⁸ Mobutu Sese Seko, the former President of Zaire from 1965 to 1997, was just one of the most harmful leaders who reportedly looted the foreign aid money for his own private interests and enjoy his luxurious life for decades, while driving the people into poverty (World Bank 1998, 1; New York Times, June 22, 1997).

²⁹ For example, Rana and Koch (2020, 7-8) found that a large portion of developmental aid in Pakistan was "re-appropriated" by the government towards other projects where their political priorities, which leads to an inefficient aid allocation.

This fungibility of aid money allows the political leaders to use it for their own gain as long as they can stay in power. However, each political leader faces a different degree of political constraints, which leads them to adopt different political and economic policies and strategies. It ultimately impacts how and where to spend the aid. In a society requiring wide-ranging support from their people for their political survival, the leader would spend the aid as public goods to secure the support. On the other hand, in a society relying only on a small group of people, the leader would spend the aid as private goods for the supporters.

According to selectorate theory, where the leader only needs the small group of supporters to stay in power, a small winning coalition, it is easier and safer for them to give direct and private benefits to their supporters. In contrast, where the leaders need support from a large group of citizens, a large winning coalition, it is more efficient to provide public goods because everyone in the society can benefit from public goods without sacrificing others (Bueno de Mesquita et al. 2003).

Thus, aid is not necessarily spent to provide public goods unless the government has to do it for their political survival. The reason is that the primary concern for all government leaders is to keep their office, not to sincerely improve the well-being of the entire citizens (Bueno de Mesquita and Root 2002). In fact, as an unearned and freer income, aid increases the possibility of office holding and regime stability by spending the money to provide rents and patronage to the members of their winning coalition (Ahmed 2012; Nieto-Matiz and Schenoni 2018).

In large winning coalition societies, foreign aid is also turned toward providing more public goods and services to support the citizens and keep the office (Cao and Tamer 2015, 11). On the other hand, in small coalition societies, a large proportion of the aid is used by and for the leaders' private goods. In this case, those resources do not flow to public spending and are

predominately used as private rewards for their coalition members (Bueno de Mesquita and Smith 2009; Licht 2010).

When it comes to spending aid, these differences between private and public goods significantly impact its economic growth. It is because providing efficient and sufficient public goods, which is one of the crucial roles of governments as well as the primary aim of foreign aid, has shown to be beneficial to the economy (Clark, Poast, Flores, and Kaufman 2011; Taydas and Peksen 2012; Rahnama, Fawaz, and Gittings 2017). For instance, fundamental public goods, such as access to safe drinking water, sanitation, transport, medical care, and school, are critical to individual well-being (Besley and Ghatak 2004). Accordingly, it improves the quality of the labor force and enhances human capital, which eventually leads to the productive economic capacity of the county. Moreover, these public goods stimulate private investment and capital inflow into the countries by making them more market-friendly (Lucas 1988).

To sum up, foreign aid, as not only an additional but also less accountable government revenue, is likely to reinforce the existing patterns of government spending. Governments in the case of large winning coalitions are more likely to spend the aid as public goods, while governments in the case of small winning coalitions are more likely to spend it as private goods. The economic consequence of it is that the foreign aid is more effective for economic growth in the society of large winning coalitions because the money is spent more like public goods, whereas it is less effective in the society of small winning coalitions because it is spent more like private goods.

3.3.2. Mediation Effect: Economic Growth and Political Violence

There is no doubt that economic condition such as economic growth changes its political conditions. Specifically, the growing economy helps strengthen the power of political leaders

and weaken the power of potential opponents. Intuitively, economic growth helps governments, since people tend to perceive the growing national economy as a sign of the incumbent's competence, and they support the current governments (Londregan and Poole 1996; Alesina, Roubini, and Cohen 1997; Palmer and Whitten 1999; Wolfers 2002; Bueno de Mesquita et al. 2003; Leigh 2009; Bueno de Mesquita and Smith 2010; Malone 2011; Burke 2012).

With the increased revenue owing to the growing economy, the government can also materially invest more money and resources to build and improve its military and security capability, which is conducive to controlling the potential rebels and opposition groups (Brender and Drazen 2008). In the perspective of potential rebels, the economic growth makes it harder for them to initiate the conflict because it reduces their ability to foster support for their cause. On the other hand, economic slowdown increases the attractiveness of political violence because it makes it easier for opponents to organize the resistance by causing economic and social problems such as the unemployed and grievances against governments.

Relatedly, a citizen, as a rational individual who enjoys materially improving life from the growing national economy, satisfies the status quo and tends to be less likely to commit and involve in violence. It is because they know that provoking or engaging in violent activities leads to compromising the current stable life, and the potential gain resulting from the violence is not guaranteed to exceed what they already enjoy.³⁰ Indeed, a growing economy, often coming along with more work opportunities and income distribution, certainly gives less incentive for individuals to disrupt the society and support violence (Burnside and Dollar 2000; Hansen and Tarp 2001; Collier and Hoeffler 2002; Dimico 2013).

³⁰ This rationale is well known as 'loss aversion' in the gain dimension, which is theorized and proved in many studies on prospect theory (Tversky and Kahneman 1992; Levy 1996; Boettcher 2004).

In contrast, material scarcity and deprivation often make an individual desperate and aggressive, which increases the attractiveness to commit any form of violence (Messner and Rosenfeld 1999; Berdal and Malone 2000; Collier and Hoeffler 2000; Ballentine and Sherman 2003; Collier 2007; Humphreys and Weinstein 2008). At a country level, it means that poverty and economic recessions certainly make the citizens unsatisfied and belligerent at the status quo of their life and governments, which makes easy for the potential rebels and opposition groups to recruit joiners and gain support from people (Gurr 1968; Sem 2008; Taydas and Peksen 2012).

It is not a rare story that many deprived young men indeed perpetrated violence, especially physical violence. If these young men had other sources of income and hope in their life, they might not commit violence against others. Deprivation and inequality have been arguably the most critical motivation in many political conflicts. A female ex-combatant of the Liberian civil war in 2004 stated: “I joined the rebel forces to fight inequality in the country, and because of this issue, I also encouraged my three children to join (cited in Richards 2005, 579).”

Thus, the growing national economy, as a whole, contributes to reducing violence and conflict in society as it changes the balance of power and the attractiveness of violence among governments, potential rebels, and people. In this sense, it is also not a coincidence that Sub-Saharan Africa has recorded a positive economic growth rate since the 1970s and experienced a gradual reduction in the overall number of civil conflicts during the same period. Specifically, the sub-Saharan region’s economic growth rate had rarely fallen into the negative one, and the average annual rate is 3.33% during 1970-2010 (World Bank).³¹ The number of ongoing civil wars in Sub-Saharan Africa has fallen from 15 in 1990 to 7 in 2010 (Fearon 2017, 21), including

³¹ This region even experienced a steady increase in income per capita at the same period as well. GDP per capita in that region has been increased from 222 US\$ in 1970 to 967 US\$ in 1981 and 1,885 US\$ in 2014 (World Bank).

the end of several prolonged civil wars in Angola, Liberia, and Sierra Leone. In fact, economic prosperity was the most effective way to reduce political violence in Africa and elsewhere (Bellows and Miguel 2006).

Many empirical studies have confirmed the tendency that violent civil conflicts are more likely to occur in underdeveloped countries (de Soysa 2002; Collier, Elliott, Hegre, Hoeffler, Reynal-Querol, and Sambanis 2003; Fearon and Laitin 2003; Miguel, Satyanath, and Sergenty 2003; Collier and Hoeffler 2004; Hegre and Sambanis 2006). For instance, the work of Collier et al. (2003) emphasizes that economically vulnerable countries such as those suffering low income, low growth, and dependence upon natural resources, in effect, are playing Russian roulette on the outbreak of civil war. According to the authors, these countries, by skill or luck, may manage to constrain the violence for some years, but eventually to see it explode, as seen in Cote d'Ivoire (in 2002) and Nepal (in 1996).³² To be specific, they found statistical evidence that the probability of a country experiencing civil war drops by one percent with every extra one percent increase in the country's income. In the following simulation, the study also showed that 0.7 percent of low-income countries go from peace to war each year, whereas only 0.3 percent of middle-income countries do so (Collier et al. 2003).

In addition to absolute poverty, the relative decline of income and growth is vulnerable to civil war. Miguel et al. (2003) found that a one percent decline in the gross domestic product increases the likelihood of civil conflict by more than 2 percent. This result implies that a drop in

³² These two countries are the instances that moderately democratic low-income countries with long histories of peace eventually collapsed into civil war, blaming for the deep-rooted poverty and economic hardship (Collier et al. 2003, 108).

income per capita by 4 percent in one year increases the likelihood of a civil conflict in the following year by nearly half.

Terrorist activity, especially domestic terrorist attacks, is also more prevalent in the poor economy, often intertwined with poverty, inequality, and unemployment (Fearon and Laitin 2003; Blomberg, Hess, and Weerapana 2004; Azam and Delacroix 2006; Sayre 2009; Freytag, Krüger, Meierrieks, and Schneider 2009; Piazza 2011; Caruso and Schneider 2013; Ezcurra and Palacios 2016). Palestine experienced more terrorist attacks when the employment rates were high during 1993–2001 (Sayre 2009). The worsening labor market condition reduces the opportunity costs for the violent behavior of the potential opponents. Similarly, inequality and poverty are closely related to domestic terrorism (Ezcurra and Palacios 2016). It is because inequality and poverty make people feel apathy, discontent, and discrimination, and those negative sentiments facilitate violence and radical behavior. Piazza (2011) 's study highlighted that the economic grievances, which are pronounced particularly in marginalized ethnic groups, are more prone to the involvement in terrorist groups. Even high-income and democratic countries could experience terrorist attacks when they face economic downward (Blomberg, Hess, and Weerapana 2004).

In sum, the growing economy and prosperous societies are more immune to political violence such as civil war and domestic terrorism. On the other hand, economic hardship and sluggishness are more vulnerable to those political conflicts.

3.3.3. Moderated Mediation Effect: Foreign Aid, Winning Coalition, Economic Growth, and Political Violence

Taking the previous discussions together, (1) the link between foreign aid, winning coalition, and economic growth and (2) the link between economic growth and political violence, I ultimately

argue that foreign aid reduces political violence via its role in the economic growth of the recipient countries, which occurs under the circumstance where the political leaders face a broad set of domestic constraint. In specific, political leaders in the case of a large winning coalition tend to spend foreign aid more to provide public goods rather than private goods. Accordingly, the recipient country is more likely to achieve economic growth, which reduces the incidence of political violence in the recipient countries. In contrast, political leaders in the case of a small winning coalition tend to spend more money to provide private goods. In this situation, aid is unlikely to help the economy, which, in turn, will not affect its political violence.

In short, aid reduces the probability of political violence when it helps the economic growth of the recipient country, which is more likely to occur in the society of a large winning coalition (moderated mediation effect).

3.4. Empirical Analysis

3.4.1. Model Specification

To evaluate the effectiveness of foreign aid on political violence described in the previous section, I specified a regression-based structural equation model, which requires two sets of equations: (1) Economic Growth and (2) Political Violence.

Equation (1) was set for investigating the effect of foreign aid and winning coalition on economic growth. The main independent variables are foreign aid (ODA), the size of winning coalition (WC), and its interaction term (ODA*WC), and the dependent variable is economic growth (Growth) in this equation. Particularly, the interaction term was included to investigate the conditional (or mediating) effect of the size of winning coalition on the relationship between

foreign aid on economic growth as the theoretical argument of this essay suggests. I expect that the interaction coefficient is positive as the winning coalition size increases aid effectiveness on growth.

I also included several control variables, which are significant determinants of growth and utilized in many aid-growth studies (Burnside and Dollar 2000; Hansen and Tarp 2001; Collier 2007; Wagner 2014; Mohapatra, Giri, and Seharawat 2016; Adeola 2017; Younsi, Khemili, and Bechtini 2019; Maruta, Banerjee, and Cavoli 2020).³³ In particular, GDP per capita (GDP) is included to capture the size of the economy. Gross fixed capital formation (CF) is included to account for investment in physical capital. Population growth (PG) is included as an indicator of the growth of the labor force. Trade openness (TO) is included to capture the importance of international factors such as advanced technologies among the trading countries, thereby increasing growth. Government expenditure (GE) is included to capture the extent of public goods provided by the government. Education attainment (EA) is included as a proxy for human capital. Inflation (IF) is included as a proxy for the stability of the macroeconomic and business environment. Lastly, government crisis (GCR) is included to capture the political instability.

Next, equation (2) was set for investigating the effect of economic growth on political violence. For political violence, I used two dependent variables, the number of onset of civil war (Y1) and domestic terrorist attack (Y2), which need their own equations. In specific, in the civil war equation (2-1), the dependent variable is the number of civil war onset (CW), and the independent variables are foreign aid (ODA) and growth (Growth). To control the potential

³³ These control variables are chosen based on a neoclassical growth model. The basic argument of this model is that the economic growth of a country can be explained by looking at capital accumulation, labor or population growth, and productivity improvement.

sources for the rebels, I also included additional variables (Collier and Hoeffler 2005; Ree and Nillesen 2006). Excluded population (EP) was included for grievances of the rebels, that is, political exclusion. Population (PO) was included for the country's size effects. GDP per capita (GDP) was included for costs for recruitment. The duration of peace (DR) was included because if a civil war has recently ended, the new rebels may easily obtain military and experienced soldiers and weapons and have a strong desire for revenge. Ethnic fractionalization (EF) and religious fractionalization (RF) were included for social cohesion within rebel groups and inter-ethnic hatred. Lastly, I included mountainous terrain (MT) for controlling the country's geography for the military conditions of rebels.

In terrorist attack equation (2-2), the dependent variable is the number of domestic terrorist attacks (DT, Y2), and the independent variables are foreign aid (ODA) and growth (Growth). Then, I also included several variables to control for the potential sources of the terrorist attack (Gassebner and Luechinger 2011; Choi and Piazza 2016; Danzell, Kisangani, and Pickering 2019). Excluded population (EP), population (PO), GDP per capita (GDP), and durability (DR) were included for the same reasons as the civil war equation. Political rights (PR) and civil liberty (CL) variables were included to control for political and civil participation, which are expected to reduce domestic terrorism. Thus, the model is constructed as follows:

$$\text{Growth} = i\text{Growth} + a_1\text{ODA} + a_2\text{WC} + a_3(\text{ODA} * \text{WC}) + a_4\text{CVs} + \varepsilon \quad (1)$$

$$\text{Political Violence (CW (Y1) and DT (Y2))} = i\text{Political Violence} + c \cdot \text{ODA} + b\text{Growth} + d_1\text{CVs} + \varepsilon \quad (2)$$

Where *i* represents constant terms of each equation. CVs contains a set of control variables of each equation described above and ε represents the error term.

The description of the variables used in this study is below and ln denotes variables in natural logs:

Growth = economic growth rate as measured by GDP growth rate (%)

ODA = the official development assistance (ODA, disbursement) share of GDP (%)³⁴ (ln)

WC = the size of the winning coalition as measured by 5 scales, ranging from 0 to 1, by 0.25³⁵

GDP = total amount of GDP per capita (ln)

GC = total amount of government consumption expenditure (ln)

CF = the domestic gross capital formation share of GDP (%) (ln)

PG = population growth rate (%)

IF = inflation rate (%) (ln)

TO = trade openness as measured by the total amount of import and export share of GDP (%) (ln)

EA = education attainment as measured by the average years of total schooling

GCR = the number of major government crises defined as any rapidly developing situation that threatens to bring the downfall of the present regime - excluding situations of revolt aimed at such overthrow

³⁴ Concerning how to measure aid, there are some options: the raw value of aid, aid/population, and aid/GDP. However, this study used aid/GDP for the following reasons. First, raw values are not informative due to differences in income and population between countries. One option is to scale total and received by a given country (one time) by its population size, suggesting per capita and as the "treatment" variable of interest. This is an intuitive measure and is technically appealing as many intermediate outcomes are expressed in population terms (e.g., average years of schooling, life expectancy). Nevertheless, aid/population has specific limitations compared to the use of the aid to GDP (aid/GDP), which has been more commonly used in the literature to date. First, it is hard to give a sensible or clear interpretation to any estimated effect of aid per capita on key macroeconomic outcomes, where variables are often measured in terms of or scaled by GDP. For instance, suppose we find that an inflow of US \$10 of aid per capita causes the GDP growth rate to rise by 1 percentage point. Although this may be of interest per se, the problem is that the implied benefit-cost ratio is ambiguous because it depends on the initial size of the economy. Second, it is reasonable to assume that the real cost of providing a given flow of public services, such as education, tends to increase with GDP. Thus, especially over long time frames, the relative purchasing power of aid over a wide range of outcomes is best considered in economic terms, not population terms (Arndt, Jones, and Tarp 2015, 9).

³⁵ The size of the winning coalition, WC, is measured as described in *The Logic of Political Survival* (Buono de Mesquita et al. 2003). WC ranges from 0 (smallest winning coalition) to 1 (largest winning coalition), and it consists of four components, each being worth 0.25 of the aggregate score. 0.25 is added to WC for each of the following conditions: (i) the regime is neither a "military" nor a "civilian military" regime as coded by Banks (2007); (ii) candidates for executive office are chosen via dual executive election or open election (Polity IV "xropen" > 2); (iii) executives are chosen via competitive elections (Polity IV "xrcomp" >= 2); and (iv) elections are typified by free and noncoerced competition of regularly active political groups (Polity IV "parcomp" = 5). More information about these components is available in Banks (2007) and Marshall and Jagers (2002).

CW = the number of onset of civil war

DT = the number of domestic terrorist attack events (ln)

EP = excluded population as measured by the proportion of the population that includes members of ethnic groups that are excluded from power (an ethnic group is defined as being excluded if it has a status below “junior partner” in the Ethnic Power Relations) (%)

PO = total population (ln)

DR = durability as measured by the number of years since the most recent regime change

EF = ethnic fractionalization as measured by the proportion of the population of each ethnic group to the total population of the country, squaring it, and summing the squared proportions for all groups, and subtract that number from 1 to come up with the fractionalization measure

RF = religious fractionalization as measured by the proportion of the population of each religion group to the total population of the country, squaring it, and summing the squared proportions for all groups, and subtract that number from 1 to come up with the fractionalization measure

MT = the share of the country’s area covered by mountains (%) (ln)

PR = political rights as measured by several dimensions of the society; electoral process, political pluralism and participation, and functioning of government, ranging from 1 (free) to 7 (not free)

CL = civil liberty as measured by several dimensions of the society; freedom of expression and belief, associational and organizational rights, the rule of law, and personal autonomy and individual rights, range from 1 (free) to 7 (not free)

3.4.2. Data

For the growth equation (1), most of the economic variables – growth (GDP growth, annual %), GDP (per capita), government consumption (government consumption expenditure), capital formation (gross capital formation, % of GDP), population growth (annual %), inflation (annual %), trade openness (calculated using exports and imports data, % of GDP) were taken from the World Bank’s World Development Indicators (WDI). Data on foreign aid (ODA) were

obtained from OECD statistics (measuring total receipts by country and year (% of GDP), disbursement Data on the size of winning coalition were obtained from Banks (2008) and Cheibub, Gandhi, and Vreeland (2010) (regime type) and Polity IV dataset (elections). Lastly, data on education attainment (average years of total schooling) were taken from Barro and Lee (2018), and data on government crisis were from replication data from Bordea, Elbadawi, and Houle (2017), respectively.

For the political violence equation (2), the dependent variables, data on civil wars³⁶ and domestic terrorist attacks³⁷ were taken from Monty G. Marshall (2017).³⁸ Data on excluded population and durability were obtained from replication data from Bodea, Elbadawi, and Houle (2017). Data on population and GDP (per capita) were from the World Bank’s World Development Indicators (WDI). Data on ethnic and religious fractionalization were obtained from Alesina et al. (2003). Data on durability (the number of years since the most recent regime change) were obtained from the Polity IV project dataset. The mountainous terrain was from the EPR dataset. Political rights and civil liberty data were from the Freedom House dataset. The descriptive statistics of the variables studied in this analysis were presented in Table 1.

Table 3.1: Descriptive Statistics

VARIABLES	Mean	SD	Min	Max
Growth (%)	4.109	7.221	-64.05	150.0
ODA (% GDP)	7.713	64.49	-592.9	2,796
Winning Coalition	0.456	0.257	0	1
GDP (per capita)	5,757	10,589	115.8	114,161
Government Consumption	1.373e+10	3.924e+10	730,983	7.820e+11

³⁶ This paper considers civil war as any intrastate 'contested incompatibility' between the government and a third party with the use of armed forces that caused at least 1000 battle-related deaths as many civil war literature such as Gleditsch, Wallensteen, Eriksson, Sollenberg, and Strand (2002) and Taydas and Peksen (2012).

³⁷ Domestic terrorist attack (also called homegrown terrorism) is defined as a form of terrorism in which victims “within a country are targeted by a perpetrator with the same citizenship” as the victims (Gary M. Jackson 2012, 235).

Capital Formation	22.84	11.44	-5.740	219.1
Population Growth (%)	2.113	1.592	-10.96	17.70
Inflation (%)	39.44	530.8	-35.84	24,411
Trade Openness	78.23	51.76	0	531.7
Education Attainment	4.809	2.768	0.0400	12.32
Government Crisis	0.15	0.49	0	7
Log ODA (% GDP)	0.856	1.613	-8.705	7.936
Log GDP (per capita)	7.768	1.299	4.752	11.65
Log Government Consumption	21.66	1.904	13.50	27.39
Log Capital Formation	3.033	0.468	-1.228	5.389
Log Inflation (%)	1.901	1.339	-4.191	10.10
Log Trade Openness	4.165	0.684	-3.863	6.276
Civil War	0.312	1.164	0	7
Domestic Terrorist Attack	9.304	47.60	0	1,252
Excluded Population (%)	0.191	0.247	0	0.98
Log Population	14.8	2.31	8.4	21.05
Durability	15.665	17.410	0	105
Ethnic Fractionalization	0.47	0.25	0	0.93
Religious Fractionalization	0.44	0.23	0	0.86
Log Mountain (%)	2.23	1.40	0	4.42
Political Rights	4.57	1.93	1	7
Civil Liberty	4.48	1.59	1	7
Log Domestic Terrorist Attack	-2.53	3.13	-4.61	7.13

3.4.3. Methods

For the estimation methods, I adopted and utilized a moderated mediation model to test the relationship between foreign aid (ODA, X), the size of winning coalition (WC, W), economic growth (Growth, M), and political violence (CW and DT, Y). The moderated mediation, also known as a conditional indirect effect, occurs when the treatment effect of an independent variable (X) on an outcome variable (Y) via a mediator variable (M) differs depending on the levels of a moderator variable (W). Specifically, either the effect of X on M, and/or the effect of M on Y depends on the level of W (Preacher, Rucker, and Hayes 2007). Thus, the simplest conceptualization of the moderated mediation has two forms. One is a first-stage moderated

mediation, which refers to when the moderating variable (W) influences the $X \rightarrow M$ relationship. The other one is a second-stage moderated mediation, which refers to when the moderating variable (W) influences the $M \rightarrow Y$ relationships (Edwards and Lambert 2007). Here, the first and second stages are involved in the particular path, and they are indicated as path ‘a’ and ‘b,’ respectively. On behalf of the relevance of the empirical strategy for the theoretical arguments, I utilized a first-stage moderated mediation with the following two equations:

$$M = i_M + a_1X + a_2W + a_3XW \quad (3)$$

$$Y = i_Y + c'X + bM \quad (4)$$

By including the moderator (W) and the product term (XW) in Equation (3), the effect of the independent variable on the mediator can vary as a function of the moderator. Similar to a general mediation model, the indirect effect of X on Y is calculated as the product of the effects of X on M and M on Y. However, in moderated mediation, the product term must also be allowed for the indirect effect to be conditional on W. By substituting Equation (3) into Equation (4), the first stage moderated mediation model can be estimated as

$$Y = i_Y + c'X + bi_M + a_1bX + a_2bW + a_3bXW \quad (5)$$

Here, X’s effect on M is expressed as $(a_1 + a_3W)$, and M’s effect on Y is b. The conditional indirect effect (ω) of X on Y is then expressed as $\omega = (a_1 + a_3W)b$, which can be rearranged as $\omega = a_1b + a_3bW$. Thus, coefficient a_3b is the estimated effect of W on the indirect effect of X on Y through M.

Hypothesis testing to determine whether the a_3b coefficient, known as the index of moderated mediation (IMM), is statistically different from zero can be carried out through bootstrap confidence interval evaluations (Hayes 2015). A confidence interval that does not

contain zero is evidence that the indirect effect is moderated. The index approach to test moderated mediation is helpful because it relies on only one inferential test and directly assesses the statistical significance of the relationship between the moderator and the indirect effect (Edwards and Konold 2020, 5).

A statistically significant index of moderated mediation provides evidence that the indirect effect is conditional on the values of the moderator; however, this does not imply that the indirect effect is statistically different from zero at all points of W (Edwards and Konold 2020, 5-6). In order to ascertain at which points of W the indirect effect is significant, formal testing of the indirect effect at various values of W is required. When the moderator is categorical, the indirect effect is simply tested at the coded values of W . For continuous variables, the choice of W values at which to test the indirect effect is less straightforward. Researchers often rely on commonly used conventions to select points that represent low, medium, and high values on the moderator (Edwards and Konold 2020, 6). One convention is to plot the mean and one standard deviation both above and below the mean. Another common choice is to select values representing various percentiles of the variable's distribution, such as the 16th and 86th percentiles (Hayes 2018, 250). In other situations, the choice of values may be guided by theory, such that specific values are most relevant to the research question or practical sense. Once the values of the moderator are selected, the indirect effect is estimated and tested at each selected value of W with the construction of confidence intervals (Edwards and Konold 2020, 6).

3.5. Results and Discussion

This study utilized the first-stage moderated mediation model and examined the conditional indirect effects of foreign aid. How the winning coalition size (W) moderates the mediating effects of economic growth (M) on the foreign aid (X) and political stability (Y) relations, which is depicted in Figure 2. The main statistical results were reported in Table 2 and 3. They showed the path coefficient, standard error, p-value, and R-squared for the moderator (the size of winning coalition)'s effect of foreign aid (X) on economic growth (M) ('a' path) and for the mediator's effect on civil conflict (Y1) and domestic terrorist attack (Y2) ('b' path) controlling for the several variables described in the previous section of this paper.

In specific, for the equation (1), the effect of foreign aid (X) itself on economic growth (M) is not statistically significant in both civil war (Y1) ($a_1 = 0.003$, $p = 0.96$) and terrorist attack (Y2) ($a_1 = 0.006$, $p = 0.94$). However, the interaction terms between foreign aid and the size of winning coalition (XW) together on growth (M) are positive and statistically significant in both equations ($a_3 = 1.737$, $p < 0.01$ for civil war (Y1), $a_3 = 1.748$, $p < 0.01$ for domestic terrorist attack (Y2)). The results imply that receiving more foreign aid may not necessarily contribute to better economic growth in every circumstance. However, it does help the economy under certain circumstances, referring to the case of a large winning coalition.

Also, for the equation (2), economic growth (M) is negatively related to its number of civil war (Y1) and domestic terrorist attacks (Y2) and both are statistically significant ($b = -0.014$, $p < 0.01$ for civil war (Y1), $b = -0.054$, $p < 0.01$ for domestic terrorist attack (Y2)). That is, aid recipient countries experiencing positive economic growth also experience fewer numbers of violent political incidents.

Figure 3.2: A Statistical Diagram for Foreign Aid – Winning Coalition – Economic Growth – Political Violence

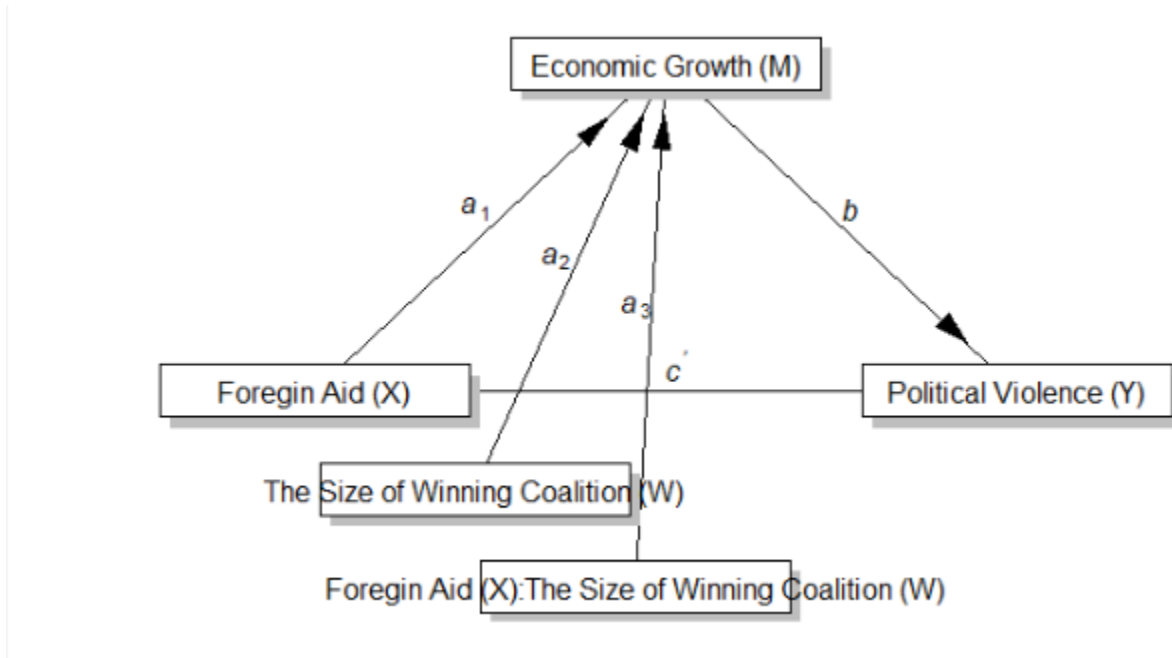


Table 3.2: Summary Information for Foreign Aid – Economic Growth – Civil War

Predictor	Outcome							
	Economic Growth (M)				Civil War (Y1)			
	Path	Coeff.	SE	p	Path	Coeff.	SE	p
X	a_1	0.003	0.062	0.96	c'	0.02	0.018	0.26
W	a_2	-7.387	0.372	0.000	-	-	-	-
XW	a_3	1.737	0.049	0.000	-	-	-	-
M	-	-	-	-	b	-0.014	0.005	0.005
R-squared = 0.74				R-squared = 0.14				
F-statistics = 5449.064 , p-value = 0.000								
Index of Moderated Mediation (IMM) = -0.025 (SD = 0.009), p-value = 0.007								

Table 3.3: Summary Information for Foreign Aid – Economic Growth – Domestic Terrorist Attack

Predictor	Outcome							
	Economic Growth (M)				Terrorist Attack (Y2)			
	Path	Coeff.	SE	p	Path	Coeff.	SE	p
X	a_1	0.006	0.082	0.94	c'	-0.20	0.076	0.009
W	a_2	-7.269	0.526	0.00	-	-	-	-
XW	a_3	1.748	0.052	0.00	-	-	-	-

M	-	-	-	b	-0.054	0.015	0.000
	R-squared = 0.74			R-squared = 0.18			
	F-statistics = 5976.524, p-value = 0.000						
	Index of Moderated Mediation (IMM) = -0.094 (SD = 0.026), p-value = 0.000						

These results combined together support the theoretical expectations. First, foreign aid has positive impacts on economic growth, which is conditional on the winning coalition's size, although there is no direct effect of foreign aid on economic growth. Second, economic growth reduces political violence (that is, the number of civil wars and domestic terrorist attacks) in the aid recipient countries. Based on these empirics, I further conducted a formal test of moderated mediation: it allows exploring and showing how the relationships among these variables, foreign aid, economic growth, and political violence (civil war and terrorist attack), are changed when the winning coalition size is changed (Hayes 2015). The results (Index of Moderated Mediation for civil war = 0.025, $p < 0.01$ and for domestic terrorist attack = -0.094, $p < 0.01$, respectively) confirmed that the winning coalition's size moderated the indirect effect of foreign aid on the political violence.³⁹ That is, the change in the size of winning coalition makes the difference in the impact of foreign aid on economic growth and political violence.

Nonetheless, merely examining the signs and magnitudes of the regression coefficients and IMM is generally not sufficient for testing moderated mediation hypotheses, as mentioned earlier. To gain further insight into this moderated mediation effect thus, I examined the nature of the conditional indirect effects graphically (Figure 3). These plots are called the mediated simple slopes plots. What these plots show is how foreign aid (X) indirectly affects political

³⁹ It is not the main theoretical concern of this paper, but worthwhile to mention that there is a difference in terms of the direct effect of foreign aid on civil war and domestic terrorist attack (c'). As the result showed, foreign aid has no direct effect on civil war ($\beta = 0.02$, $p = 0.26$), while it is statistically significant and has a negative effect on domestic terrorist attack ($\beta = -0.20$, $p = 0.009$) (that is, the increase of foreign aid is associated with the decline of the incidence of the domestic terrorist attack).

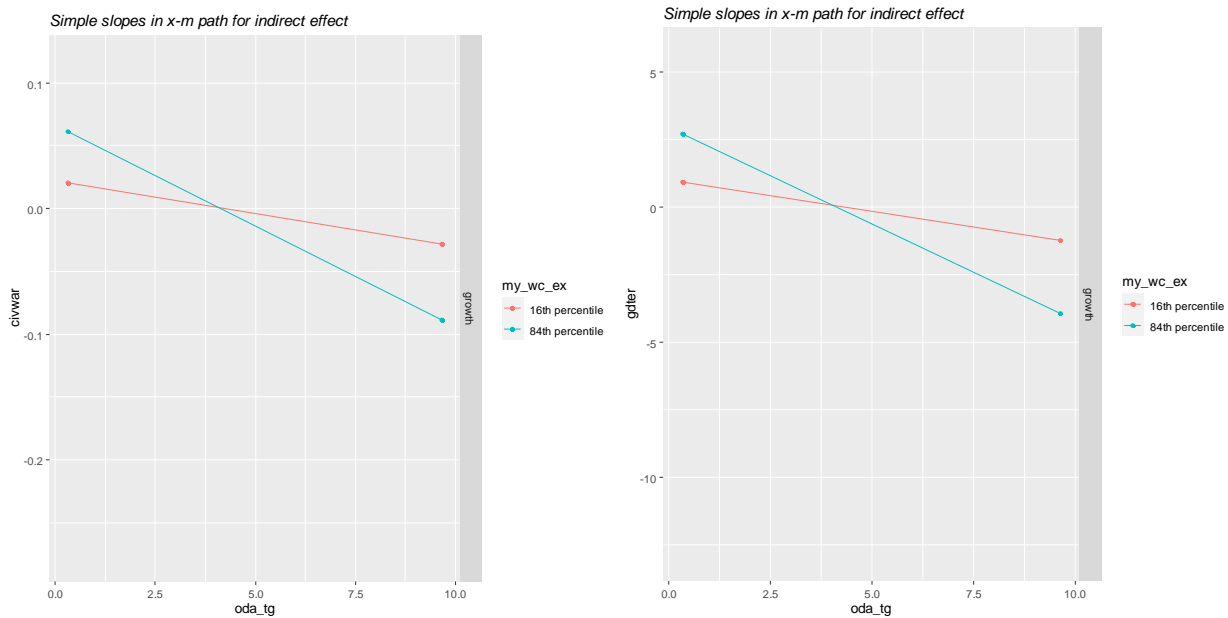
violence (Y) (the left for civil wars (Y1) and the right for terrorist attacks (Y2)) through economic growth (M) at two characteristic values of winning coalition sizes (W), which is called the pick-a-point approach. A separate line represents each value of the moderator. For the numerical variable, the 16th (lower value) and 84th (higher value) percentiles of the distribution of the variable are taken, as recommended by Hayes (2018, 250), to draw the figures. The parallel lines indicate the absence of moderation, and crossing lines suggest the presence of moderation (Verboon and Peters 2019).

Figure 3 shows the two lines between the higher and lower values of the winning coalition (left panel for civil war (Y1) and right panel for domestic terrorism (Y2)) are crossed each other. It means that as the size of winning coalition increases, the indirect effect of aid on political violence increases, and the difference in the effect of moderated mediation is significant. In specific, when the size of winning coalition (W) is 84th percentile (high value, blue line), foreign aid (X) predicts a moderated decline in the number of civil war (Y1) and domestic terrorist attacks (Y2). However, when the size of winning coalition (W) is 16th percentile (low value, red line), foreign aid (X) is not related to the decline in the number of civil wars (Y1) and domestic terrorist attacks (Y2).

The results suggest that the winning coalition size mediates the effect of foreign aid on economic growth, which in turn affects the political violence (civil war and domestic terrorist attack) of the recipient countries at different levels and directions. That is, foreign aid (X) leads to a decrease in political violence (Y) due to the positive relationship between the winning coalition (W) and economic growth (M) when the winning coalition is at higher values. On the other hand, foreign aid (X) does not decrease its political violence (Y) due to no relationship between the winning coalition (W) and economic growth (M) when the winning coalition is at a

lower value. In other words, in the case of large winning coalitions, foreign aid has a strong and negative effect on political violence through the mediating effect of economic growth. In the case of small winning coalitions, however, the aid does not reduce the political violence because there is no significant effect of aid on economic growth.

Figure 3.3: Simple Slope Plots for Relationship between Foreign Aid, Economic Growth, and Political Conflict across the Size of Winning Coalition (left: civil war (Y1) and right: terrorist attack (Y2))



When it comes to the rest of the control variables, some conditions contribute to its economic growth and political violence (Table 4). For example, capital formation and inflation show statistically significant impacts on its economic growth for both equations (1) (that is, for civil war (Y1) and domestic terrorist attack (Y2)). In addition, for equation (2), population and the duration of peace are statistically significant to civil war (Y1) and domestic terrorist attack (Y2), which were the common variables in both equations.

Table 3.4: Full Models of Moderated Mediation Analysis

	Civil War	Terrorist Attack
Growth Equation		
ODA (% GDP) (log)	0.003 (0.062)	0.006 (0.082)
Winning Coalition	-7.387*** (0.372)	-7.269*** (0.526)
ODA (log) * W.C.	1.737*** (0.049)	1.748*** (0.052)
GDP per capita (log)	-0.047 (0.110)	0.019 (0.118)
Gov't. Consumption (log)	-0.035 (0.051)	-0.072 (0.057)
Capital Formation (log)	0.716*** (0.232)	0.780*** (0.263)
Population Growth (%)	0.102 (0.092)	0.101 (0.090)
Inflation (log) (%)	-0.110* (0.058)	-0.115* (0.070)
Trade Openness (log)	-0.023 (0.142)	-0.031 (0.169)
Education Attainment	-0.024 (0.041)	-0.008 (0.040)
Government Crisis	-0.237* (0.131)	-0.276 (0.174)
R-squared	0.74	0.14
Political Violence Equation		
Economic Growth (%)	-0.014*** (0.005)	-0.054*** (0.076)
ODA (% GDP) (log)	0.02 (0.018)	-0.20*** (0.076)
Excluded Population (%)	-0.063 (0.130)	1.070*** (0.385)
Population (log)	0.120*** (0.016)	0.850*** (0.055)
GDP per capita (log)	-0.125*** (0.020)	0.005 (0.088)
Durability	-0.006*** (0.001)	-0.009** (0.005)
Ethnic Fractionalization	0.158	-

Religious Fractionalization	(0.098) -0.326***	-
Mountain (%) (log)	(0.095) 0.008	-
Political Rights	(0.012) -	-0.462*** (0.085)
Civil Liberty	-	-0.462*** (0.114)
R-squared	0.74	0.18
Observations	1,982	1,732

Standard errors in parentheses

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

To sum up, these empirical findings, in general, support the theoretical arguments by showing that economic growth mediates the relationship between foreign aid and political violence (civil war and domestic terrorist attack), and the size of winning coalition moderates this indirect effect. As the size of winning coalition becomes larger, the economic impact of foreign aid becomes more positive. Those interactions, in turn, contribute to reducing the risk of the recipient countries experiencing political violence.

3.6. Conclusion

The purpose of this essay was to examine the relationship between foreign aid, economic growth, and political violence. Theoretically, I argued that foreign aid contributes to reducing the recipient countries' political violence through its role on economic growth, which is conditional on the size of winning coalition. The larger the winning coalition sizes, the more the political leaders spend foreign aid to provide public goods, which helps the recipient economy. In addition, the positive economic growth facilitated by the interaction effect between foreign aid

and a larger winning coalition, in turn, contributes to decreasing the risk of political violence. It is because economic well-being increases the value of the individual's perception toward maintaining the status quo. That is, the improvement of their material prosperity increases the current government's popularity and discourages the potential rebels from challenging them.

This theoretical argument was empirically tested by utilizing the IMM estimation strategy. The result showed that the effectiveness of foreign aid on economic growth is conditional on the winning coalition's size. More precisely, aid-recipient countries in the case of larger winning coalitions tend to achieve higher economic growth than those countries in the case of smaller ones. Second, economic growth has a positive effect in reducing the recipient country's political violence. The countries experiencing higher economic growth are also less likely to experience civil wars and domestic terrorist attacks. Taken together, it confirmed the theoretical argument that foreign aid has a conditional indirect effect on its political violence via its role on economic growth. In the case of large coalition size, aid-recipient countries achieve better economic performance, which in turn experience fewer civil wars and terrorist attacks.

This study contributes to our understanding of the effectiveness of foreign aid in a couple of ways. First, as far as my knowledge, it is the first study that empirically showed that foreign aid helps the recipient countries' political peace via its role in economic growth. It is an important distinction from the existing literature, which theorized that aid inflow directly affects conflict or peace. That is, foreign aid is invested in increasing the government's capacity to deter potential violence. Alternatively, it increases the incentives and payoffs for the rebels. By doing so, those studies relatively neglected the key purpose of aid, economic growth. This study filled the gap by theorizing and empirically testing the mediating effect of economic growth between foreign aid and political conflict.

Pointing out the role of foreign aid in reducing the political violence in the recipient countries, this essay also informs us that the international community can help the developing countries, enhancing global peace. That is, foreign aid, as one of the key foreign and international policies, is even effective in promoting international cooperation and peace, which is beyond the explicit targets of aid, the recipient country's economic well-being.

The empirical findings provide some policy implications. First, the finding that foreign aid and the institutional characteristics of recipient countries mediate the effects of political stability suggests that only providing more foreign aid is insufficient to achieve the political stability and peace of the recipient countries. Donor countries and international organizations need to ensure the recipient countries spend the aid money effectively and efficiently to help their economic development, which contributes to reducing political violence.

Second, the findings reveal that the interactive effect of foreign aid and the winning coalition's size indirectly influences political stability via economic growth as a mediator. These findings suggest that donors and international organizations should particularly pay more attention to and monitor the usage of foreign aid in a highly exclusive society. Specifically, donors and aid policy practitioners should better understand the recipient countries' political environment to ensure the practical usage of foreign aid. Otherwise, the aid money can be easily wasted, even harming the recipient country's economy and peace.

Finally, some weaknesses of this study also need to be mentioned. First, concerning the research methods, the estimation technique used in this essay could not take advantage of the panel dataset structure, mainly due to the underdevelopment of the statistical method. Therefore, it might suffer some potential issues such as time and sectional fixed effect, which should be addressed in the future as more advanced statistical methods are developed. Second, concerning

the theoretical point, this study only examined the effect of economic growth on political violence. However, other channels might reduce the recipient countries' political conflict, such as reducing poverty and inequality via providing foreign aid. Investigating those other links and their impacts on political violence could be for further work.

Chapter 4. Foreign Aid and Donor Export: Korea's ODA

4.1. Introduction

Korea was an aid recipient. For most of the post-Korean War (1950-1953) period, Korea heavily relied on foreign assistance for the war recovery and its economic development. According to the government estimates, the country received US\$ 12.7 billion between 1945 and the late 1990s.

With the aid given, Korea could overcome from one of the poorest countries to one of the leading economies in the world. In fact, its GDP reached approximately US\$ 1.65 trillion, which is the 12th largest economy in 2019 (World Bank). Meanwhile, Korea joined OECD in 1996 and became the 24th member of the Development Assistance Committee (DAC) in 2009.⁴⁰ Then, as not only a member of DAC but also a beneficiary of foreign assistance, Korea has been committed to contributing to ODA: the government spent US\$ 2.5 billion on ODA in 2019, which corresponds to 0.15% of its GNI and is ranked at the 15th largest donor country.

Despite the ideal and goodwill purpose of the aid, the increase in volume and proportion of ODA causes some political and realistic concern for the Korean government when it comes to implementing ODA policy. Because citizens are skeptical about the effectiveness of the aid and reluctant to give their money abroad, it becomes an economic and social burden to the government. According to a survey, 'The Public Opinion on ODA,' conducted by the Office for Government Policy Coordination in 2016, 24% of the correspondents evaluated that the current volume of ODA should be reduced. In contrast, only 13% of the correspondents believed that

⁴⁰ The DAC currently has 30 members: Australia, Austria, Belgium, Canada, Czech Republic, Denmark, European Union, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Korea, Luxembourg, The Netherlands, New Zealand, Norway, Poland, Portugal, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, United Kingdom, United States (OECD website: <http://www.oecd.org/dac/development-assistance-committee/>, accessed on Feb 11, 2021).

ODA should be increased, down from 25% in 2015. In this regard, examining the effectiveness of ODA from a donor's perspective is timely important in promoting public understanding of foreign aid and ensuring ODA policy. As part of this purpose, this essay aims to investigate Korea's ODA and export.

Export, in particular, matters to Korea as their national interests. The successful economic development of Korea, namely 'the Miracle on the Han River,' which refers to the country's economic growth at an unprecedented speed, resulted from an export-oriented industry structure and policy. Korea's trade dependence has comprised over 70% of its GDP since 2004. Moreover, the number of exporter enterprises in the domestic market is 94,825 in 2014 (Boh and Heshmati 2017, 2). These facts imply that Korea's exports have been and will remain important as a driving force of its sustainable economic growth and development. In this sense, studying the export impact of Korea ODA is worthwhile not only for the humanitarian aspect but also for the aspect of the practical and national interest of the donor.

Theoretically, I argue that foreign aid promotes donor's export to the recipient. First, there are direct mechanisms in case the aid is tied. Second, foreign aid allows building political, economic, and social relationships between donor and recipient countries and increases their interaction. Therefore, those spillover effects of foreign aid can facilitate donor's export to recipients. Then, to test the argument, I empirically examined Korean bilateral ODA and export from 1965 to 2015 by applying a dynamic gravity model with GMM estimators.

By doing so, this essay contributes to the existing literature in two ways. The theoretical contribution of this study is that I articulated the direct and indirect mechanisms of foreign aid and donor export, which the existing studies on foreign aid and trade relatively neglect the discussion of the possible mechanisms and mainly focused on showing empirical evidence. In

addition, by applying the GMM estimators, I obtained the less biased and more consistent aid-export elasticities. Using the results, I was further able to compute and present the long-term effect of Korean bilateral aid on its export, which allows a comparison to the effect of other donors.

The remainder of this essay is organized as follows: Section 2 briefly reviews the existing literature on the effects of aid on donor's export. Section 3 presents the theoretical reasoning of the relationship between bilateral aid and donor export. Section 4 describes the methodology and the data used in this paper. Section 5 presents and analyzes the empirical results. Section 6 concludes.

4.2. Literature Review: Foreign Aid and Donor Export

Previous studies investigating the effect of foreign aid on export have focused on the advanced and western donor countries either as a group of countries or as an individual case. Although the degree of the effect varies among the literature, those empirical studies, in general, found that foreign aid has a positive effect on donor's exports.

4.2.1. Aggregate Effectiveness of Multiple Donors' Aid on Export

Many early studies analyzed the relationship between foreign aid and donor export at an aggregate level. For example, Arvin and Baum (1997) examined the relationship between aid and export by using 17 OECD countries for 1972-1990, and they found that aid is positively related to its exports. Similarly, Nilsson (1997) investigated the relationship by using data on the aid and exports of EU countries to developing countries from 1975 to 1992. In specific, applying for a gravity model, the author showed that US\$ 1 of aid increased EU exports by an average of

US\$ 2.6. Wagner (2003) also found that the elasticity of exports to aid for 20 OECD members during 1970 and 1990 was between 0.062 and 0.195. In other words, it means that, on average, each US\$ 1 given in aid leads to an increase in export of the donor countries between US\$ 0.73 and 2.29.

Later, more studies have added robust evidence to the early literature by applying advanced model specifications and estimation methods (Silva and Nelson 2012; Pettersson and Johansson 2013; Martinez-Zarzoso, Nowak-Lehmann, Parra, and Klasen 2014; Temple and Van de Sijpe 2017). Pettersson and Johansson (2013) used a gravity model for 184 countries between 1990 and 2005 and applied Helpman-Melitz-Rubinstein (HMR) model in their study. They found that aid is positively associated with not only recipients' export to donors but also donors' export to recipients and emphasized that the effect is particularly strong for the Sub-Saharan region. Martinez-Zarzoso et al. (2014) used data on 21 OECD DAC members' aid and exports to 132 recipient countries from 1988 to 2007. Applying a Feasible Generalized Least Squares (FGLS) method, the authors found that a one-percent increase in aid raises donors' export by 0.039 percent. Using the results, they showed that in the short run, the average return on aid for donors' export is approximately US\$ 0.50 increase in exports for every aid dollar spent, although the effect varied over time. Temple and Van de Sijpe (2017) also found that aid per GDP increases net donor's export. Using data of DAC member's ODA of three-year averages over 1971 – 2012 to 88 aid recipients and employing a Common Correlated Effects (CCE) method, they showed that a one-percent increase in bilateral aid raises donors' export by 0.0416 percent.

In sum, the existing studies analyzing the effect of aid on donor countries' export at the aggregate level showed a general tendency to increase donors' export towards the recipients. However, by interpreting the impact of aid on export at the aggregate level, this approach could

not investigate the possible difference in the magnitude and degree of the effectiveness of aid on export among individual donors and recipients.

4.2.2. Single-donor's Aid Effectiveness on Export

As an attempt to address this issue of the aggregate level of analysis, other studies focused on a single donor and its effectiveness on export (Martinez-Zarzoso, Nowak-Lehmann, Klasen and Larch 2009; Martinez-Zarzoso, Nowak-Lehmann, Klasen and Herzer 2009; Martinez-Zarzoso, Nowak-Lehmann, Klasen and Johannsen 2016; Hansen and Rand 2014; Martinez-Zarzoso, Nowak-Lehmann, and Klasen 2017; Zarin-Nejadan, Monteiro, Noormamode 2008; Otor and Dornan 2017; Otor 2017; Liu and Tang 2018).

For example, both studies, done by Martinez-Zarzoso et al. (2009) and Nowak-Lehmann et al. (2009), investigated the German case and concluded that German bilateral aid increased its exports to the recipients. In specific, Martinez-Zarzoso et al. (2009) found that the average return for exports on German aid is about US\$ 1.4 increase in exports for every dollar spent during the period from 1962 to 2005. Likewise, Nowak-Lehmann et al. (2009) found that on average, one dollar of aid increases export between US\$ 1.04 and 1.50 during 1962 - 2007. Hansen and Rand (2014) examined Danish exports to 144 countries from 1981 to 2010 and found that Danish bilateral aid positively impacts Danish exports to the recipient countries. The average return per US\$ 1 of aid is equivalent to US\$ 0.30. In addition, using the data on Australian exports to 17 Asian countries between 1980 and 2013, Otor and Dornan (2017) found that, on average, one dollar of aid increases its exports by US\$ 7.10 in the long run. For the case of Japan, Otor (2017) found that for US\$ 1 spent on ODA, the average return of Japan exports to 15 Asian countries is between US\$ 1.41 – 1.86 during 1972–1991 and US\$ 2.03–2.62 during 1992–2008.

On the one hand, those single-donor studies confirmed that foreign aid promotes trade between donors and recipients, consistent with the findings of the aggregate level of donor analysis. At the same time, they also contributed to the literature by uncovering some variations of the aid effect on its export among donor countries and making it possible to compare each other. For example, based on the previous empirical findings, some donors (Australia and Japan) experienced a higher increase in export than other donors (Denmark and Germany).

However, despite these contributions, both the single donor studies and the aggregate level of donor analyses are still similar in terms of their scope of donor selection. They mainly focused on the western and developed countries, which are known as “traditional (or the first generation)” donors (Lloyd, McGillivray, Morrissey, and Osei 2000). By doing so, both perspectives dealt with the typical pattern of the donor-recipient relationship: the donors are developed and advanced countries, while the recipients are developing countries. It is true that foreign aid and development cooperation by those advanced and western-European countries have a long history and still take a large portion of it. However, it is also true that many developing countries have recently emerged as “new” (non-western) donors, such as Russia, China, India, Turkey, and Korea.^{41 42} Partially because of this short history of being donors, there are relatively less accumulated empirical studies examining these new donors. This essay fills the

⁴¹ According to Dreher, Fuchs, and Nunnenkamp (2013, 402-403), international development cooperation is still dominated by DAC countries, but the role of other donors is gaining momentum. In particular, only 3.0% of reported aid originated from non-DAC countries during 1990 – 1994. This share increased to 5.2% in 2005-2009. This growing contribution of developing countries as aid donors (“new” donors or non-DAC donors) might have a significant change in development finance and implementation.

⁴² Some of the works on China are as follows: One is Liu and Tang’s work (2018). The authors found that China’s aid has a positive effect on its total volume of trade and its export to Africa during the time between 2003 and 2012, while the aid from the US has little impact on its trade and export to Africa. Similarly, Turcu and Zhang (2018) studied the impact of China's aid on exports using the data of 159 recipient countries during 2000 - 2014. They found that the return on Chinese exports of every dollar spent on foreign aid is around 0.2-0.4 US\$ at the aggregate level for the period.

gap by empirically investigating the Korean case as a new donor country, which will follow the theoretical reasons why foreign aid increases export to recipients.

4.3. Theoretical Mechanisms of Aid Effect on Donor Export

There are several direct and indirect mechanisms that foreign aid helps donors export to recipient countries. The first mechanism is the direct effect, which includes ‘tied aid’ (Wagner 2003; Zarin-Nejadan et al. 2008; Martinez-Zarzoso et al. 2009). The other mechanisms are through the indirect impact of aid by building up a positive relationship between donors and recipients in multiple dimensions: political, economic, and social linkages (Wagner 2003; Otor and Dornan 2017).

4.3.1. Direct Links

If aid is tied, it will directly increase the donor's export to the recipients during the period of aid implementation. It is because the recipients are obligated to use those aid funds to buy goods or services from the donors. For example, Ghana received US\$ 155 million (88% of the total budget of the project) of foreign aid for the Sixth Power Project during 1990 and 1994 from the EU, Canada, and Spain, which aimed for maintaining the reliability of Ghana’s electricity supply. The aid was tied in that the donors made it clear that the project should use products such as equipment and materials and technology provided by the donors, and all of the bidding documents were reviewed and approved by the donor countries (Osei 2003, 6-7). In this sense, aid itself is trade, which involves the direct transfer of goods and services from donors to recipients. Thus, it is evident that tied aid immediately increases donor export to the recipient countries, which might not have occurred without the aid.

However, the increase in donor's export to recipients can also occur even without the explicit tying agreement. For instance, a donor may informally tie aid by choosing to finance development projects that require supplies from industries where the donor has comparative advantages (Jempa 1991, 42). Jepma and Bartels (1986, 27-38) showed that the selection of the sectors to which aid was channeled generally reflected the comparative advantages of the donor countries. Donors can also "implicitly" tie aid by imposing bidding procedures that the recipient must follow in the procurement process, which are often similar to the donor's own domestic bidding procedures. The donor's domestic companies, thus, would have an advantage in the institutional familiarity for bidding to supply the recipient county's project (Wagner 2003, 158). Alternatively, export companies of donors may advise the recipients on who to secure aid, that is, the companies' home government, for specific development projects to which the companies can provide supplies. The fact that the U.K. usually recommended that the assistance can be used for expenditures outside of the U.K. markets only when the price of U.K. suppliers is "unreasonably" high could be one of the examples of this informal and implicit tied aid practice (Osei 2004, 6). In sum, tied aid increases donors' exports to the recipient because of the directly attached conditionality to the aid.⁴³

4.3.2. Indirect Links

Moreover, aid without tying still generates the same export-promoting effects as tied aid does (Arvin and Baum 1997; Arvin and Choudhry 1997; Arvin, Cater, and Choudhry 2000). In

⁴³ The tied aid represents only a small percentage of the donor countries' total exports. In fact, tied aid turned out to comprise only about 4 percent of total exports of EC-9 exports during the period 1978–1983 to a representative group of 32 recipients (Jempa 1991, 41-42). Besides, the proportion of tied aid to untied aid has been even significantly declining since the 1980s. Based on OECD data, the ratio between total bilateral aid and tied aid has decreased from over 50% in 1979 to 12% in 2017 worldwide (the absolute amount of tied aid was 9.6 billion US\$ and 13 billion US\$ in 2017) (Data extracted on December 11, 2019) from OECD.Stat, <https://stats.oecd.org/Index.aspx?datasetcode=TABLE7B#>).

specific, bilateral aid can be an investment to bring potential economic benefits for donors. Under the name of the Marshall Plan, the U.S. offered US\$ 20 billion to European countries that fatally suffered from World War II. The U.S. government believed that it helps European countries and at the same time benefits the U.S. economy by creating European demand for U.S. commodities. In fact, “the money would be used to buy goods from the United States, and they had to be shipped across the Atlantic merchant vessels. (But), it worked (the U.S. Diplomatic mission to Germany).”⁴⁴ The U.S. also provided a substantial amount of aid to Japan to help them recover from the war. Doing so brought U.S. products to Japan and highly contributed to the success of the U.S. companies such as Microsoft in Japan (Ventura 2018). Similarly, the former U.S. aid recipients, such as South Korea, Brazil, Mexico, Vietnam, and Thailand, are now the top trading partners of the U.S (US Census Bureau).⁴⁵

Also, those countries where ‘The U.S. the President’s Emergency Plan for AIDS Relief (PEPFAR) aid’ was given to help fight against the AIDS epidemic, in turn, consumed more U.S. goods and products. In fact, U.S. exports rose 77% in Tanzania, 189% in Zambia, and 241% in Ethiopia. PEPFAR is one of the decisive determinants of the increase in U.S. pharmaceuticals exports to Africa (Ventura 2018).

In this regard, foreign aid is not only a form of money and resource transfer from the wealthy to the poor but also a channel of cultivating the relationship between the donors and recipients. Bilateral aid can increase bilateral trade through the relationship. Specifically, it is possible because building a positive relationship through aid allows reducing the transaction cost

⁴⁴ Direct quote from the website of U.S. Diplomatic mission to Germany (<https://usa.usembassy.de/etexts/democrac/57.htm>).

⁴⁵ According to the data from United States Census Bureau, as of October 2019, Mexico is ranked in 2nd biggest (53.8 billion dollars) trading partner for the U.S., Japan in 4th (18.1), Korea in 7th (11.2), Vietnam in 11th (7.4) and Brazil in 15th (6.2) (<https://www.census.gov/foreign-trade/statistics/highlights/top/top1910cm.html>).

of trade and promoting a good image of the donor, which increases the attractiveness of importing donors' products and services.

4.3.2.1. Foreign Aid as a Political and Economic Linkage

Foreign aid can serve to build a political and economic linkage between the donor and recipient countries. For instance, given that donor countries often combine aid missions and aid negotiations with trade missions, the aid relationship might “open door” for donor exporters and lead to trade agreements (Martinez-Zarzoso et al. 2009; Nowak-Lehmann et al. 2009; Nowak-Lehmann, Felicitas, Martínez-Zarzoso, Herzer, Klasen, and Cardozo 2013). Once the donor starts transferring aid to the recipient, there is an increase in the recipients' exposure to goods and services from the donors, which results in future exports to the recipients (Osei et al. 2004, 548).

Similarly, foreign aid itself can function as a “trade policy” (Morrissey 1993). Aid often attaches economic policy of the recipient countries, such as structural reforms and trade liberalization. These conditionalities lower the barrier for donors to access the market into the recipient countries and expand commercial ties by boosting the follow-up orders and purchases. Martinez-Zarzoso et al. (2016, 76) called it the “habit-formation effect” in that donor-funded exports for aid-related projects might create the patterns of habit for buying products from the donor countries. Having access to those goods and services, in turn, reinforces the political and economic linkages and networks between the two countries and reduces the transaction cost of trade for the future.

4.3.2.2. Foreign aid as a Social and Cultural Association

The bilateral contacts through aid projects can also increase the information on the donor countries in the recipient countries, which generates positive emotions such as goodwill and

attractiveness toward donor countries (Berthelemy, Beuran, and Maurel 2009). Those information and positive images on the donors can make the recipient governments and citizens prefer donors' products.

In particular, aid can generate political goodwill in the recipient country, leading to purchasing products from donors. It is possible because the recipient country may feel emotionally obligated (or inclined) to do so, showing their 'goodwill,' which might secure the continuous aid flow from donors (McGillivray and Morrissey 1998; Lloyd et al. 2000; Wagner 2003). The concept of goodwill is not new, and several marketing studies have shown its effectiveness. Going back to the early time, Adam Smith (1759) in *The Theory of Moral Sentiments* put it as "sympathy," described as an intangible asset that capitalizes on preferential use by customers based on human nature (habit, propensities, beliefs, social customs, etc.). Later, Nerlove and Arrow (1962) introduced the idea of goodwill in an advertising study and argued that advertising creates a stock of goodwill, which affects the demand for the product. It could serve as a similar motivation for getting foreign aid (Arvin and Baum 1997, 73). Giving aid is considered a favorable and benevolent behavior, and the recipients appreciate it, which leads them to purchase more donor products.

Moreover, at the individual level, implementing aid projects and programs in recipient countries can have a demonstration effect to promote donor country's products (Lloyd et al. 2000; Nowak-Lehmann 2009). Here, the demonstration effect refers to local residents' adoption of host consumption and spending behavior. Several tourism studies showed this effect (Murphy 1985; Moore 1995; Burn 1999; Reisinger 2009; Monterrubio and Mendoza-Ontiveros 2014). For example, Reisinger (2009) argued that locals notice the superior material possessions of tourists and wish to have the same as a result of the demonstration. That is, the locals in developing

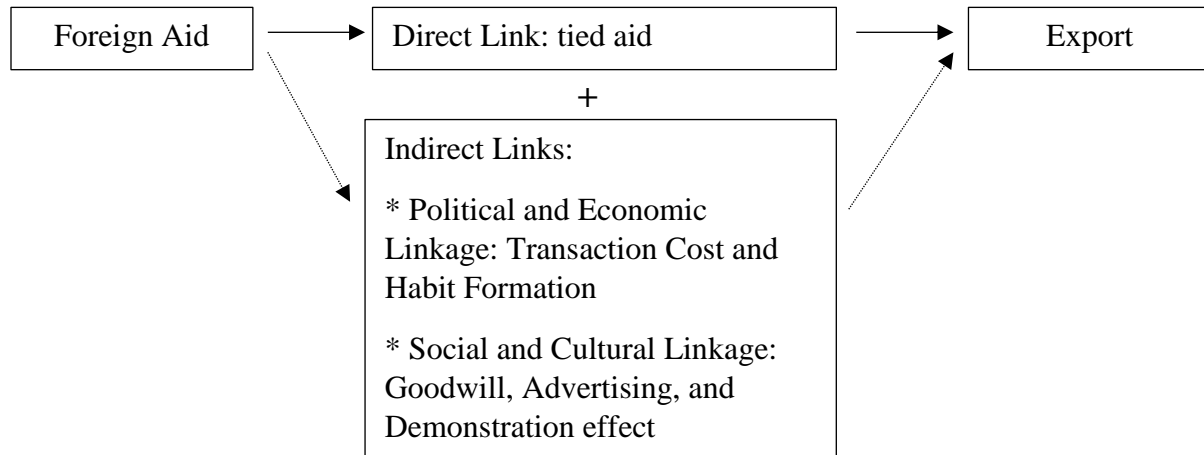
countries often envy the tourists who are commonly from developed countries and yearn for them because they are not as wealthy as the tourists are and do not have the same standard of living. This demonstration effect could work for foreign aid on exports in similar ways. Citizens in the recipient countries may see the donor countries and their products as superior and attractive because mostly donor countries are more prosperous and developed than recipients, just like the relationship between tourists and locals. Therefore, the demand for the donor's products could grow among the recipient citizens, which leads to an increase in donor's exports to the recipient countries.

Lastly, there is a macroeconomic effect of foreign aid on export. Foreign aid facilitates economic development, which increases the recipient's income and enhances their ability to purchase more goods and services from other countries (White 1992; McGillivray and Morrissey 1998). However, this mechanism is not considered in this paper for the following two reasons: first, not all of the recipient countries achieve economic growth, and there is still a debate on the effectiveness of aid on development. Second, it might explain the increase of the total trade flow of the recipient countries but does not necessarily explain the bilateral trade relationship of foreign aid, which is the primary concern of this essay.

In sum, giving and receiving aid is a channel of political, economic, and social exchange between the governments and people, which physically lowers the transaction cost of trade and enhances a good image of donor countries socially and emotionally. Those spillover effects of aid would lead to an increase in donors' export to recipients. In addition, it is noteworthy that based on these theoretical mechanisms presented in this section, it is expected to see a long-term effect of aid on exports (which would be even greater than short-term) as well as a short-term effect of it. It is because those impacts take time to be noticeable since the effect of aid on export

attribute to indirect mechanisms such as habit formation and demonstration effects (Otor 2017, 62).

Figure 4.1: Theoretical Framework



4.4. Empirical Analysis

To examine the effect of foreign aid on its export to recipient countries, I empirically analyzed Korea as a donor country: Korean bilateral aid and its export to the recipient countries. In particular, Korea is a noteworthy case for the unique experience of ODA and economic development.

Korea was an aid recipient. For most of the post-war period, Korea heavily relied on foreign assistance for war recovery and economic development. According to Korean government estimates, the country received US\$ 12.7 billion between 1945 and the late 1990s, “which helped spur economic development and decrease poverty (OECD 2008, 9).” The government successfully utilized this financial assistance to overcome various domestic difficulties through state-led projects designed to facilitate economic development (Evans 1995; Kim 2011). Owing to this help, Korea became one of the leading economies in the world now.

As of 2019, its GDP is the 12th largest among the countries: approximately US\$ 1.65 trillion (World Bank).

With the economic success, Korea became the 24th member of DAC in 2009 (after joined OECD in 1996) and is known for an example among a few aid success stories (Stallings and Kim 2016, 122). Korea spent US\$ 2.4 billion on ODA in 2018, which is the 15th largest amount of aid. This amount corresponds to 0.15% of Korea's gross national income (GNI), making the country the 24th largest donor in proportion to its economic size (OECD 2018). It is followed by Denmark (US\$ 2.6 billion), and Korea is the only Asian country in this group except for Japan (the fourth largest donor, US\$ 14.2 billion in 2018) (OECD 2019). In 2019, eighteen DAC members raised their ODA, and Korea is among them, with the most significant increases in Finland (+18.2%), Hungary (+14.5%), Korea (+13.9%), Greece (+11.0%), and Norway (+9.7%) (OECD 2019). Indeed, Korea successfully graduated from an aid recipient and became a newly emerging donor.

In addition, international trade is critical for national interests. Especially for Korea, its exported-oriented industry structure and policy have significantly contributed to its economic development. Korea relied on international trade, which was the main engine of its economic growth in the 1970s and 1980s (trade as a proportion of total GNP was around between 56% and 68% between 1977 and 1987), and it continued to remain as a key economic strategy for its sustained development (Sohn 2011, 8). Accordingly, given both facts of its aid history and development experience, investigating the Korean case allows learning the impact of aid on donor's export from another angle, particularly as an emerging donor country, which has been relatively understudied in the existing literature.

Furthermore, one of the fundamental issues for dealing with the causal relationship between aid and trade would be to meet that the trade flow must be more remarkable, given the presence of aid, than it would be were aid absent. In other words, the effects of aid must result in a higher level of donor exports to the recipients than would be the case without aid, controlling for other conditions that might affect trade (Lloyd et al. 2000, 109).

Korea provides an excellent example to address this aspect in that it is relatively straightforward when the aid rapidly increases, unlike the traditional donors. The latter has kept giving since the creation of the OECD. Although Korea had received foreign aid until the 1990s, its ODA history started in the 1960s when the government began training programs with funds from USAID. Through these programs, the Korean government invited citizens of developing countries to Korea and provided them with training. In 1965, the Korean government ceased using USAID funds and began paying for these projects with Korea's own budget (KOICA 2011).

Then, in the 1990s, Korea reversed its position from a recipient to a donor, as pointed out earlier. Korea launched the Economic Development Cooperation Fund (EDCF) in 1987 and established the Korea International Cooperation Agency (KOICA) in 1991. With those efforts and active aid policy implementation, Korean aid has rapidly increased since the 1990s. The average annual growth rate of ODA reached approximately 23% (KOICA 2021). In this regard, examining Korean ODA makes it possible to compare no aid to aid with a substantial amount of bilateral export to recipient countries. To see if this is the case, I run the same model for two separate periods, 1965 to 1989 and 1990 to 2015, along with the entire period (1965-2015).

Table 4.1: Korea's Total Bilateral Aid (unit: US\$ million)

	Mean	SD
Entire period (1965-2015)	1.20	7.37
Pre-1990 (1965-1989)	0.10	0.04
After-1990 (1990-2015)	2.3	10

4.4.1. Model Specification

The dependent variable in this study is Korean export to the recipient (EX_{jt}), and the independent variable is Korean bilateral ODA ($BAID_{jt}$). Then, I also included several control variables, which are significant determinants of international trade and typically used in aid-export literature (Anderson 1979; Bergstrand 1985; Anderson and van Wincoop 2003; Helpman, Melitz, and Rubinstein 2008; Nowak-Lehmann et al. 2009; Nelson and Juhasz Silva 2012; Otor and Dornan 2017): total aid, GDP, population, import, distance, common religion, WTO, FTA, and exchange rate.⁴⁶

In specific, total aid ($TOTAL_{jt}$) is included to capture the overall effect of foreign aid on the recipient country. Four variables, GDP for the recipient ($GDPR_{jt}$) and Korea ($GDPD_t$) and population for the recipient (POR_{jt}) and Korea (POD_t), are included to capture the size of the economy for both donors and recipients. Import (IM_{jt}) is included to capture the bilateral

⁴⁶ The choice of control variables is mostly based on a gravity model of bilateral trade flow between two countries (Anderson 1979; Bergstrand 1985; Helpman 1987; Deardorff 1998; Feenstra et al. 2001; Anderson and van Wincoop 2003; Feenstra 2004; Haveman and Hummels 2004; Kabir, Salim, and Al-Mawali 2017; Osabuohien, Efobi, Odebiyi, Fayomi, and Salami 2019) along with a few modifications. The main argument of this model is that the volume of trade between any two countries is positively related to the size of their economies (usually measured by GDP) and negatively related to the trade costs between them (Piermartini and Teh 2005, 37). Several variables were generally used to capture the trade costs. Distance and dummies for islands, landlocked, and common borders were used to capture the transportation costs of trade. They are higher for landlocked countries and islands, while lower for neighboring countries. Dummies for a common language, adjacency, or other relevant cultural features, such as colonial history, were used to capture the information costs. If countries have more in common, they are more likely to have close economic ties by lowering the information costs. Lastly, tariff barriers were generally included as the form of dummies for the existence of regional trade agreements, which lower the institutional costs of trade as well (Piermartini and Teh 2005, 37).

relationship between export and import between the two countries. Distance (DIS_j) between the two capitals is included to capture the transportation costs of trade. Common religion ($COMREL_j$) is included to capture the information costs. If countries have more in common, they are more likely to have close economic ties by lowering the information costs. WTO membership (WTO_{jt} & WTO_t) and FTA (FTA_{jt}) are included to capture tariff barriers, which lower the institutional costs of trade. Lastly, the exchange rate ($EXRE_{jt}$) is included to control for the price effects of international trade.⁴⁷

For the specific empirical application, I focused on Korea exports to all its eligible aid recipient partners over time (i.e., panel dataset). Therefore, aid recipients were indexed by j and years by t . The model specification is as follows:

$$\ln EX_{jt} = \beta_0 + \beta_1 \ln BAID_{jt} + \beta_2 \ln TOTAL_{jt} + \beta_3 \ln GDPR_{jt} + \beta_4 \ln GDPD_t + \beta_5 \ln POR_{jt} + \beta_6 \ln POD_t + \beta_7 \ln IM_{jt} + \beta_8 DIS_j + \beta_9 COMREL_j + \beta_{10} WTO_{jt} + \beta_{11} WTO_t + \beta_{12} FTA_{jt} + \beta_{13} EXRE_{jt} + \mu_j + \nu_t + \varepsilon_{jt} \quad (1)$$

\ln denotes variables in natural logs. The constant term β_0 captures factors that are common to all years and all trade partners. μ_j is a time-invariant fixed effect, which captures all unobserved country-pair-specific factors. It allows for the unobserved heterogeneity that captures the time-variant effect of omitted variables.⁴⁸ ν_t is a year-specific effect that captures unobserved factors specific to the period t , but common to all country pairs, such as trade shock that affects all countries in a particular year. ε_{jt} represents the error term.

⁴⁷ Bilateral exchange rate controls for price effects in the gravity equation (Soloaga and Winters, 2001). An appreciation of the exchange rate can be expected to decrease a country's exports to its trading partners. However, there are countervailing effects, such as the positive exchange rate effects of rising export levels. Thus, the exchange rate effect remains ambiguous (Abeyasinghe and Yeok, 1998; Otor and Dorman 2017).

⁴⁸ The distance between the two economic centers (DIS_j) and common religion ($COMREL_j$) vary only with the "j" dimension. Thus, these variables are excluded from the fixed effect regression because they are not directly estimated.

The description of the variables used in this study is below:

EX_{jt} = Korea's export to the recipient country j (US\$)

$BAID_{jt}$ = bilateral ODA (disbursement) from Korea (US\$)

$TOTAL_{jt}$ = total ODA (disbursement) the recipient country j received (US\$)

GDP_{jt} = the recipient country j's GDP (US\$)

GDP_t = Korea GDP (US\$)

POR_{jt} = the recipient country j's population

POD_t = Korea's population

IM_{jt} = total export from recipient j to Korea (i.e., Korea's import from the recipient) (US\$)

DIS_j = the distance between Korea and country j (km) (distance between capitals which was computed as great-circle distances using data on straight-line distances in kilometers, latitudes and longitudes)

$COMREL_j$ = the similarity of the religion between Korea and country j

WTO_{jt} & WTO_t = dummy variable, the value of 1 when recipient country j and Korea is the member of WTO, respectively

FTA_{jt} = dummy variable, the value of 1 when Korea has a free trade agreement in force with the recipient country j

$EXRE_{jt}$ = the nominal bilateral exchange rate in monetary units of the recipient currency per Won (Korean currency)

4.4.2. Data

The dataset consisted of 50-year observations, ranging from 1965 to 2015 for 162 aid-eligible countries.⁴⁹ The data on official development assistance (ODA) disbursements (disbursements record the actual international transfer of financial resources or the transfer of goods and services valued at the cost to the donor) were measured in US\$ (millions) and were obtained from the OECD Development Assistance Database (for both of Korean bilateral ODA and total ODA).

⁴⁹ Korea's ODA data is available from 1965 when the Korean government ceased using USAID funds and began paying for development projects with Korea's own budget (<https://www.kdevelopedia.org/Development-Overview/all/history-korea-s-odkoica--201412110000389.do>).

The data on Korean exports and imports (in US\$, thousands) were from Korea Eximbank (The Export-Import Bank of Korea). The data on GDP, population, distance (distance between capitals), FTA, WTO, and common religion were obtained from the CEPII (Centre d'Etudes Prospectives et d'Informations Internationales) database. Data on bilateral exchange rates were obtained from UNCTAD (United Nations Conference on Trade and Development) database.

Table 2 presents the summary statistics of the variables used in the empirical analysis.

Table 4.2: Descriptive Statistics

Variable	Mean	SD	Min	Max
Export to Recipient (US\$, thousands)	606,470	4.848e+06	0	1.459e+08
Korean Bilateral Aid (US\$, millions)	1.197	7.368	0	244.1
Total Aid (US\$, millions)	190.6	530.7	0	24,801
Import from Recipient (US\$, thousands)	575,076	3.671e+06	0	9.025e+07
Population (Korea, million)	41.74	6.484	28.70	50.62
Population (Recipient, million)	23.14	107.1	0.00337	1,371
GDP (Korea, US\$)	4.162e+11	4.325e+11	3.018e+09	1.410e+12
GDP (Recipient, US\$)	5.210e+10	3.094e+11	8.825e+06	1.100e+13
Distance (km)	9,803	3,974	155.1	19,564
Common Religion	0.0280	0.0281	0	0.122
WTO membership (Korea)	0.960	0.197	0	1
WTO membership (Recipient)	0.429	0.495	0	1
Free Trade Agreement	0.000667	0.0258	0	1
Bilateral Exchange Rate	0.319	1.508	0	27.05
Log Export to Recipient	8.931	3.528	0	18.80
Log Korean Bilateral Aid	-1.789	1.204	0	5.497
Log Total Aid	2.328	3.439	0	10.12
Log Import from Recipient	7.751	4.403	0	18.32
Log Population (Korea)	3.719	0.164	3.357	3.924
Log Population (Recipient)	0.747	2.506	-5.693	7.223
Log GDP (Korea)	25.72	1.827	21.83	27.97
Log GDP (Recipient)	22.31	2.214	15.99	30.03

Log Distance	9.068	0.587	5.044	9.881
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4.4.3. Methods

The dependent variable is ‘dynamic’ – that is, the past realization of dependent variables might also affect current year performance. For example, it may not be the current year’s foreign aid that affects export, but rather the previous year’s aid could play a significant role in the export. Thus, to capture this characteristic of the panel dataset, I employed the GMM (Generalized Method of Moments) estimation technique, which is developed by Arellano and Bond (1991) and Blundell and Bond (1998).⁵⁰ This GMM technique uses lags of the dependent variables as explanatory variables, and the lagged values of the dependent variables serve as instruments to control this endogenous relationship. By doing so, the GMM provides consistent results in the presence of different sources of endogeneity, “unobserved heterogeneity, simultaneity, and dynamic endogeneity (Wintoki, Linck, and Netter 2012, 588).”⁵¹ For this reason, I applied the

⁵⁰ Arellano and Bond (1991) firstly proposed using the difference GMM estimation. This estimator removes the fixed effects by transforming the data and addresses the endogeneity issue by using lagged values as instruments. In a later study, Blundell and Bond (1998) showed that the difference GMM performs poorly, especially when the variables are close to a random walk - the lagged levels are not strong instruments for first differenced variables. Moreover, when the number of time periods is small and the dependent variable is highly persistent, the difference GMM may be subject to huge sample bias (Alonso-Borrego and Arellano 1999). The system-GMM estimator improved the efficiency by using both lagged levels as well as lagged differences and system-GMM estimators to ascertain the robustness of the results. Also, in the system GMM, time-invariant variables can be considered as regressors such as distance and common religion in the model.

⁵¹ "There are two kinds of the methods, known as one-step GMM and two-step GMM, depending on how to transform the data (which means a statistical process where a variable's past value is subtracted from its present value, Roodman 2009, 86). However, one-step GMM, which uses the first-difference transformation, has some limitations. For instance, if a variable's recent value is missing, then the first-difference transformation could result in the loss of too many observations (Roodman 2009). To avoid this potential data loss, Arellano and Bover (1995) recommended the use of a second-order transformation (two-step GMM). This two-step GMM subtracts the average of all future available observations of a particular variable, instead (Roodman 2009, 86). Using a two-step GMM, researchers can prevent unnecessary data loss, so that in the case of a balanced panel dataset, a two-step GMM model provides more efficient and consistent estimates for the involved coefficients (Arellano and Bover 1995) (Ullah, Akhtar, and Zaefarian 2018, 71)."

two-step system GMM estimation as the most reliable one in dealing with these sources of endogeneity in addition to the one-step system GMM.⁵²

Hence, in order to model the dynamics of trade relations and to account for the persistence in trade flows, the lagged dependent variable is included as an additional independent variable. Finally, the dynamic specification is given by:

$$\begin{aligned} \ln EX_{jt} = & \beta_0 + \theta \ln EX_{jt-1} + \beta_1 \ln BAID_{jt} + \beta_2 \ln TOTAL_{jt} + \beta_3 \ln GDPR_{jt} + \beta_4 \ln GDPD_t + \\ & \beta_5 \ln POR_{jt} + \beta_6 \ln POD_t + \beta_7 \ln IM_{jt} + \beta_8 \ln DIS_j + \beta_9 \ln COMREL_j + \beta_{10} \ln WTO_{jt} + \beta_{11} \ln WTO_t \\ & + \beta_{12} \ln FTA_{jt} + \beta_{13} \ln EXRE_{jt} + \mu_j + \nu_t + \varepsilon_{jt} \end{aligned} \quad (2)$$

Where EX_{jt-1} represents exports from Korea to country j in period $t-1$ and all of the other variables are the same as described in equation (1).

Concerning the robustness check of the estimation technique for the empirical test, I utilized other techniques along with the GMM: OLS (with PCSE), random and fixed effect analysis. The results of these estimations are also presented in the following results sections.

4.5. Results and Discussions

Table 3 shows the results of the empirical analysis, which covered the entire period of the dataset between 1965 and 2015: OLS (PCSE), Random, and Fixed effect,⁵³ one-step, and two-step

⁵² The problem may be addressed using instrumental variables. However, finding proper instrumental variables is not easy and sometimes impossible (Antonakis, Bendahan, Jacquart, and Lalive, 2010; Antonakis and House, 2014). The fundamental problem of the instrumental variable approach is the identification of the models due to the high complications such as not having sufficient data, high correlations of instrumental variables, and deficient order and rank conditions (Bentler and Chou 1987; Martens and Haase 2006). Also, researchers should have strong theoretical arguments to build the directions of hypotheses and models for using specific instrumental variables.

⁵³ Concerning the appropriateness of using Fixed effect over Random effect dealing with unobserved heterogeneity in the panel dataset, this paper performed the Hausman test. The result ($p < 0.000$) implies that using a fixed effect is preferable because there some characteristics of the individual in the panel that does not change over time which affects the dependent variable.

system GMM. Then, Table 4 presents the results, which separated the period into two, one from 1965 to 1989 (Column (1), (3), (5)) and the other from 1990 to 2015 (Column (2), (4), (6)) using Fixed Effect, one-step, and two-step GMM estimation methods.

In general, the coefficients of Korean bilateral aid lie in a range of 0.06 to 0.21 (the short-run impact of bilateral aid on export). It is statistically significant for the entire period (1965-2015) by using OLS and system-GMM methods. Although the two other methods (random and fixed effects) did not reach statistical significance, they still show positive signs.⁵⁴ Thus, the results support the theoretical expectation that foreign aid increases donor's export by showing that Korean bilateral ODA is positively related to export to recipients.

For further analysis and interpretation, I mainly used the results of the two-step system GMM estimator (Column (5)) for the following reasons. First, given the persistence of the export flow, it is more appropriate to rely on the dynamic models (equation (2)) which GMM estimators (Column (4) and (5)) are designed for dealing with. In addition, this GMM estimator accounts better for the other possible sources of endogeneity of bilateral aid, which satisfied the conditions for the estimators' validity: Sargan test and the Arellano-Bond test for the first and second order correlation.⁵⁵

⁵⁴ Also, it is a rule-of-thumb that the pooled OLS estimates biased upwards and fixed effect estimates biased downward (Bond, Hoeffler, and Temple, 2001), which is shown in this result as well.

⁵⁵ When applying the GMM model, researchers need to apply two post-estimation tests to determine whether an appropriate econometric model is applied. These tests are (1) the Sargan test and (2) the Arellano-Bond test for the first order and second order correlation. First, a critical assumption for the validity of GMM estimates requires that instruments are exogenous. In other words, the findings from GMM will not valid if the instruments are endogenously determined. Sargan test is used to determine whether the econometric model is valid or not, and whether the instruments are correctly specified or not. If the null hypothesis is rejected, the researcher needs to reconsider the model or the instruments used in the estimation process. On the other hand, if the Sargan test turns out to be insignificant it implies that the instruments included in the econometric specifications are exogenous. Second, to examine the validity of a strong exogeneity assumption, the Arellano-Bond test for no auto-correlation (or no serial correlation) is used under the null hypothesis that the error terms for two different time periods are uncorrelated. In other words, it means that the lagged variables are not correlated with the error term (Ullah, Akhtar,

Table 4.3: Korean Bilateral ODA on Export (1965-2015)

	(1)	(2)	(3)	(4)	(5)
	OLS (PCSE)	Random Effect	Fixed Effect	One-step System GMM	Two-step System GMM
Export (lag, log)	-	-	-	0.601*** (0.0376)	0.642*** (0.0507)
Korean Bilateral Aid (log)	0.078*** (0.025)	0.0125 (0.0214)	0.000837 (0.0212)	0.0663** (0.0273)	0.0723*** (0.0272)
Import from Recipients (log)	0.028*** (0.008)	0.0534*** (0.00796)	0.0448*** (0.00803)	0.0248** (0.0113)	0.0255* (0.0132)
Total Aid (log)	0.026** (0.011)	0.0489*** (0.0122)	0.0565*** (0.0123)	0.0377* (0.0203)	0.0300 (0.0257)
Distance (log)	-0.193* (0.109)	-0.364** (0.172)	-	-0.106 (0.360)	0.117 (0.424)
Population (Recipients) (log)	-0.225*** (0.040)	-0.173*** (0.0591)	-1.596*** (0.169)	-0.266** (0.106)	-0.185 (0.122)
GDP (Recipients) (log)	1.082*** (0.043)	0.902*** (0.0419)	0.734*** (0.0480)	0.646*** (0.0933)	0.551*** (0.105)
Population (Korea) (log)	7.00*** (1.840)	2.328** (0.994)	5.993*** (1.043)	-	-
GDP (Korea) (log)	0.209 (0.158)	0.656*** (0.0878)	0.698*** (0.0865)	-0.438*** (0.160)	-0.368** (0.173)
Common Religion	-1.795 (1.659)	-7.991* (4.215)	-	0.403 (6.082)	-0.409 (6.144)
WTO (Korea)	0.038 (0.128)	-0.110 (0.689)	-0.102 (0.747)	-	-
WTO (Recipient)	0.080 (0.092)	0.0655 (0.0641)	0.108* (0.0655)	0.118 (0.131)	0.0889 (0.131)
Free Trade Agreement	0.118 (0.475)	-0.0724 (0.538)	-0.0635 (0.529)	0.402 (0.291)	0.420 (0.278)
Bilateral Exchange Rate	0.048 (0.037)	0.0670*** (0.0255)	0.0633** (0.0259)	0.0553** (0.0216)	0.0414 (0.0263)
Constant	-45.19*** (3.300)	-33.82*** (2.315)	-45.69*** (1.992)	-	-
Long-run effect of Korean ODA					0.202*** (0.082)

and Zaefarian 2018, 76). The values for these two post-estimation tests are reported in both Table 3 and 4, which confirmed that the instruments used in this estimation process are valid.

\$ Return of Korean ODA in the long-run					36.619
Observations	3,876	3,876	3,876	3,807	3,807
R-squared	0.676	0.709	0.716	-	-
Number of Countries	-	163	163	162	162
Number of Instruments	-	-	-	76	76
AR(1)	-	-	-	0.000	0.000
AR(2)	-	-	-	0.153	0.151
Sargan	-	-	-	123.122	123.122

Standard errors in parentheses

*** p < 0.01, ** p < 0.05, * p < 0.1

In specific, the aid coefficient equals 0.072 (Column (5)) and is statistically significant ($p < 0.01$), which implies the short-term impact of foreign aid on export. That is, a percentage change in Korean bilateral aid leads to 0.072% increase in export in the short-term, on average, other things are being equal.

I also calculated the long-run elasticity for further analysis, and the result is 0.20 ($p = 0.015$).⁵⁶ A percentage change in Korean bilateral aid leads to 0.20% increase in export in the long run, on average, other things are being equal. Indeed, Korea bilateral aid has a more significant positive effect on export in the long run (0.20) than in the short run (0.074).

Explaining it in a more intuitive way of this impact, the average return on aid for Korean bilateral aid is approximately US\$ 36.62 increase in exports for each dollar spent.⁵⁷ This result

⁵⁶ This long-run effect of GMM estimator result is calculated according to the following formula: $\frac{\hat{\beta}}{1 - \sum_{j=1}^p \hat{\phi}_j}$, where

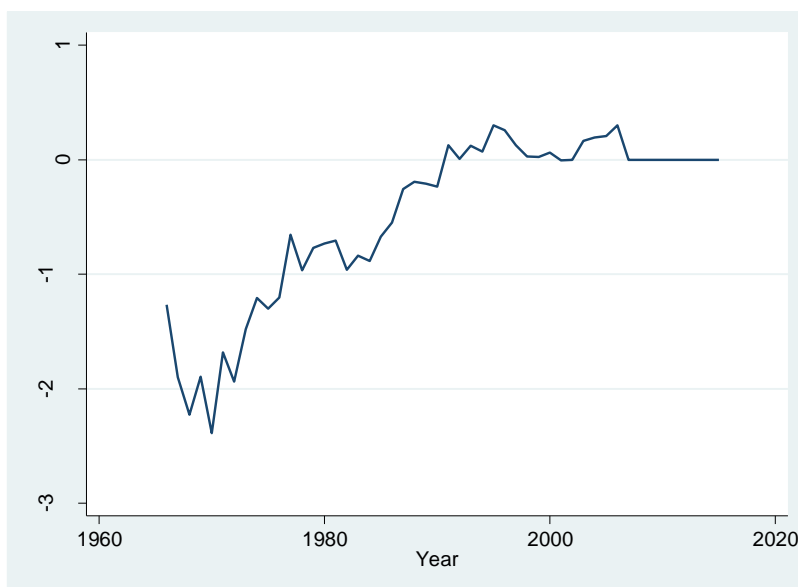
β denotes the coefficients for the variable log Korean ODA, p stands for the number of lags included into the model, and ϕ denotes the coefficients for the variable lag log export (see Zuazu-Bermejo 2015, 12).

⁵⁷ The long-run average returns of ODA on export is calculated according to the following formula: $\frac{\partial X}{\partial Y} = \beta_i X \frac{X}{Y}$, where β_i denotes the coefficients for the variable log Korean ODA; X denotes the average of exports, Y denotes the averages of Korean aid. The coefficient is taken from Table 2 and the averages from Table 1 (see Otor and Dornan 2017, 20).

implies that in the long run and over the period, the monetary return of Korean bilateral aid on its export is more than proportional.

Concerning year dummies in GMM estimators, which control for time variations of exports across the panel, the sign of the coefficient is changed from negative to positive at around the year 1990 (Figure 2). This change suggests that the exports of the year during 1965-1989, on average, tend to be lower than the previous years. In contrast, those of the year after 1990, on average, tend to be higher than the previous years. For example, on average and other things are being equal, export in 1967 is 77% lower than the year 1966 ($\beta = -1.268$), while export in 1995 is 26% higher than the year 1994 ($\beta = 0.0705$).⁵⁸ This result corresponds to the time when Korean ODA has proliferated, which justifies separating the data between pre-1990 and post-1990 and further investigates the impact of ODA on export.

Figure 4.2: Year Effect on Export



⁵⁸ This time effect is calculated according to the following formula: $[e^{\hat{\beta}} - 1] * 100$, where e is the exponent of the natural logs and $\hat{\beta}$ denotes the coefficient for the year dummy variable (Giles 2011).

Table 4.4: Korean Bilateral ODA on Export – applied to different periods

	Fixed Effect		One-step System GMM		Two-step System GMM	
	(1965-1989)	(1990-2015)	(1965-1989)	(1990-2015)	(1965-1989)	(1990-2015)
	(1)	(2)	(3)	(4)	(5)	(6)
Export (lag, log)	-	-	0.592*** (0.0460)	0.455*** (0.0809)	0.552*** (0.0570)	0.574*** (0.0848)
Korean Bilateral Aid (log)	-0.360** (0.157)	0.0978*** (0.0200)	0.252 (0.207)	0.136*** (0.0480)	0.192 (0.244)	0.0947** (0.0377)
Import from Recipients (log)	0.0231* (0.0125)	0.0442*** (0.00941)	0.0125 (0.0154)	0.0185 (0.0211)	0.0115 (0.0169)	0.0122 (0.0201)
Total Aid (log)	-0.00195 (0.0292)	0.0214* (0.0130)	0.0433 (0.0534)	0.0289 (0.0242)	0.0117 (0.0686)	0.0260 (0.0199)
Distance (log)	-	-	0.366 (0.384)	0.698 (0.504)	-0.0108 (0.452)	0.561 (0.479)
Population (Recipients) (log)	-0.641 (0.392)	-1.219*** (0.279)	-0.263 (0.194)	-0.375* (0.197)	-0.188 (0.255)	-0.245* (0.126)
GDP (Recipients) (log)	0.853*** (0.0961)	0.626*** (0.0614)	0.497*** (0.161)	0.915*** (0.245)	0.495** (0.191)	0.648*** (0.169)
Population (Korea) (log)	1.343 (2.120)	7.484*** (1.025)	-	-	-	-
GDP (Korea) (log)	1.178*** (0.181)	0.161* (0.0970)	-0.164 (0.191)	-0.807*** (0.265)	-0.395 (31.71)	-0.544** (0.218)
Common Religion	-	-	-17.69 (13.76)	-11.83 (13.23)	-10.66 (12.85)	-12.38 (12.83)
WTO (Korea)	-0.405 (0.816)	-	-	-	-	-
WTO (Recipient)	-0.0386 (0.201)	0.207*** (0.0743)	0.785* (0.424)	0.334 (0.225)	0.674* (0.363)	0.0913 (0.194)
Free Trade Agreement	-	-0.0703 (0.394)	-	0.227 (0.660)	-	0.731 (0.759)

Bilateral Exchange Rate	0.127 (0.150)	0.00103 (0.0324)	0.196 (0.196)	0.0938** (0.0375)	0.112 (0.241)	0.0493 (0.0390)
Constant	-44.28*** (3.750)	-35.54*** (2.840)	-	-	-	-
The long-run effect of Korean ODA						0.222** (0.090)
\$ Return of Korean ODA in the long-run						38.26
Observations	1,544	2,332	1,503	2,199	1,503	2,199
R-Square	0.666	0.322	-	-	-	-
Number of Countries	127	161	127	160	127	160
Number of Instruments	-	-	56	50	56	50
AR(1)	-	-	0.000	0.000	0.000	0.002
AR(2)	-	-	0.578	0.127	0.610	0.142
Sargan	-	-	67.956	124.806	67.956	124.806

Standard errors in parentheses

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 4 shows the results. Comparing the results dividing the sample into these two periods indicates that most of the effect of Korean ODA on export comes from the later period (1990-2015) rather than the early period (1965-1989). All of the aid coefficients for the later period are positive and statistically significant, while none of those for the early period does show any statistical significance. The coefficient for the fixed effect estimator (column (1)) even shows a negative sign, which is statistically significant.

Specifically, the aid coefficient equals 0.095, the short-term impact for the period of 1990-2015 (column (6)), which is larger than that of the entire period (1965-2015, 0.072, Table

2). It means that a percentage change in Korean bilateral aid leads to 0.095% increase in export in the short-term ($p < 0.05$), on average, other things are being equal.

For the next step, the long-run elasticity is 0.22, which is statistically significant ($p = 0.016$). It means that a percentage change in Korean bilateral aid leads to 0.22% increase in export in the long run, on average, other things are being equal (for the comparison, it is 0.20 for the entire period). Thus, it can be interpreted as Korean bilateral aid has a larger positive effect on export in the long run (0.20) than in the short-run (0.074). In other words, the average return on aid for Korean bilateral aid is approximately US\$ 38.26 increase in exports for each dollar spent (for the comparison, it is US\$ 36.62 for the entire period).

When it comes to the rest of the control variables, a couple of factors show a robust relationship with exports. First, the lagged export variables are positive and statistically significant. The result indicates that there is a lagged relationship in exports. That is, the previous export is related to the current export, and it persists over time. This is important because it not only confirms the existence of time dynamics of the dependent variable in this model but also provides evidence of the indirect mechanisms of foreign aid on its export to the recipient (e.g., habit formation). That is, once the door opened, it tends to remain. The recipient GDP variables are also positive and statistically significant. It makes sense that wealthier recipients buy more products because they can do so, which is confirmed in this study. However, for the effect of the time-invariant variables, geographical closeness and common culture show mixed results. It is not empirically true that Korea trades more with geographically or historically closer countries.

In sum, these empirical results support the theoretical argument of the effect of foreign aid on its donor's export. Foreign aid increases donors' export toward the recipient countries. In addition, the effect becomes larger over time, which provides some evidence on the indirect and

informal mechanisms of aid to its export, such as habit formation and goodwill motivation. It is because those effects take more time to be visible than the tied (and direct) mechanism of aid on donor's export to recipients.

4.6. Conclusion

This essay examined the relationship between foreign aid and export, for the case of Korea from 1965 to 2015. Theoretically, it argued that foreign aid promotes donor's export to the recipient for two reasons: (1) there are direct mechanisms when explicit and implicit tied-aid agreements are involved; and (2) giving aid and implementing aid policy involves transferring money and people. Thus, it not only aims to promote the economic development of recipients but also can serve as building the political, economic, and social relationships between donor and recipient countries. As a result, those spillover effects of foreign aid can increase the export of donor countries to recipients.

Then, by applying a dynamic gravity model with GMM estimators, I provided empirical evidence that Korean bilateral ODA is positively related to its export to the recipients. Given that Korean aid increased rapidly in the 1990s, the model further estimated the effect for 1990–2015 as well as the entire period. The result showed that the impact of Korean ODA on its exports is more significant in the post-1990s than in the pre-1990. It is valid for both the short-term and long run. In specific, for the later period, a percentage increase in Korean bilateral aid is associated with 0.095% increase in export in the short-term and 0.22% increase in export in the long run. The long-term return to export is US\$ 38.26 for each US\$ 1 of aid disbursed.

These empirical findings of this essay are in line with the existing aid-trade literature, in general: bilateral aid promotes donor' exports to the recipient countries. However, examining the Korean ODA case also contributes to the literature by revealing some variations of the aid impact on export. First, it showed that Korea enjoys a significant amount of trade benefits from the aid compared to other traditional donors. Second, the long-term effect of aid on export is more prominent than its short-term impact.

In addition, the findings offer inspiring news to the international community and the donor countries, especially those who face the reluctance and resistance of the domestic audience to giving aid. Giving aid is benign and humanitarian behavior. However, it also gives tangible national interests to the donor's countries at the same time. Indeed, ODA can be an investment in the recipient countries that boosts the donor's economic interests.

Lastly, some weaknesses of this study need to be mentioned, which can be the potential research agenda for the future. This study used the aggregate data for aid and export, the total bilateral aid and the total volume of export. Therefore, it might be interesting to examine the relationship between different types of aid and sectoral exports to see if any specific types of aid are more related to some of the export industries than others. Second, based on the long-run effect, which was calculated by using a statistical formula, this essay was only able to tentatively conclude that aid increases donor's export through indirect mechanisms (political and social ties) as well as tied conditions. Thus, it would be better to see if the actual perception of recipient government officials and citizens toward the donors' countries is changed or not, which might be obtained by conducting an experiment or public opinion survey. By doing so, the theoretical argument of the political and social tie mechanisms of aid can be supported more strongly.

Chapter 5. CONCLUSION

This dissertation contributes to providing a better understanding of the effectiveness of foreign aid: whether foreign aid achieves its goals and how it affects the recipient and donor countries and international relations. Foreign aid can serve several goals and influence many areas at the same time. The primary aim of aid is to support long-term capacity growth, poverty alleviation, and political development in recipient countries. However, the impact of aid is not limited to the area. Aid policy can also promote international trade and cultivate the soft power of donor countries. Accordingly, when it comes to examining the effectiveness of foreign aid, we should consider these various outcomes, including economic growth, political development, and international relations. My dissertation attempts to integrate some of these various impacts of foreign aid: promoting economic growth, reducing the recipient countries' political violence, and increasing the export of the donor countries. Each essay in this dissertation highlights how and when foreign aid is effective in achieving these goals. Foreign aid helps the recipient/s economic growth when it is spent as it is intended for, providing public goods (Chapter 2). Foreign aid can deter the political violence of the recipient countries, such as civil war and domestic terrorist attacks, when it helps countries' economic growth (Chapter 3). Foreign aid also facilitates donor's export to the recipient country (Chapter 4). By investigating the effectiveness of foreign aid in this broader way, economic and political development for the recipient country and foreign policy for the donor countries, we can assess the effect and efficacy of foreign aid in a more proper and practical sense.

Chapter 2 examines when foreign aid can help the recipient country's economic performance. The chapter contributes to the existing literature on aid-growth in that I reveal that

the effectiveness of foreign aid depends on how to spend the money, and the political leaders' survival strategy primarily determines it. When and only the political leaders are motivated to spend the aid money for providing public goods, rather than for their own interests, aid is effective and leads to economic growth. The theoretical prediction is tested using a panel dataset of aid and growth rates for 82 recipient countries between 1960 and 2010. The empirical analysis finds support for the hypothesis that foreign aid increases the economic growth rate of the recipient country where the size of winning coalition is large.

These findings draw some policy direction and recommendations. Most importantly, the donors and international aid agencies should better understand the diverse recipient countries' political environments, which affect their aid practices and effectiveness. In specific, policymakers should avoid adopting a homogeneous aid allocation policy for all recipient countries as much as possible. It is not to say that donor countries and international society should abandon aid policy altogether, but improve the efficiency of aid provision in the countries.

For example, it might be necessary to have regional experts and local people familiar with the political environments participate in making a policy decision and implementing aid policy. Furthermore, during the operation process, the donor countries and international organizations should closely monitor whether aid is allocated as designed and timely to secure the aid's effectiveness. It is especially crucial when the money goes to poorly governed and strongly elites-centered countries. Lastly, thorough analysis and evaluation of the aid policy should be conducted regularly after aid implementation, focusing on finding when, where, and how aid is effectively implemented to improve aid policy quality further.

Chapter 3 examines the effect of foreign aid on the incidence of political violence in the recipient countries. This chapter aims to understand how foreign aid affects political violence. Departed from the argument of Chapter 2, I further theorize that aid can deter the political violence in the recipient country via its role of economic growth, which changes the balance of power between government and the potential rebels. That is, economic growth strengthens the government and weakens the potential challengers. Using data for aid and civil war and domestic terrorist attack, the empirical analysis demonstrates that the recipient country experiences fewer civil wars and domestic terrorist attacks when the country are under economic growth, which is more likely to occur in the society of the large winning coalition. This study's findings suggest that foreign aid may not directly reduce the political violence of the recipient country, but it helps through its mechanism of economic growth.

The central contribution of this chapter is to provide empirical evidence of the indirect role of foreign aid on political violence by utilizing the IMM strategy. Some literature has argued this indirect mechanism of aid-growth to political violence. However, to my knowledge, this is the first study to provide empirical evidence that aid statistically and significantly reduces the incidence of civil wars and terrorist attacks via its indirect role in economic growth. The theoretical arguments and empirical evidence reveal that the effect of foreign aid is not limited to its direct purpose, that is, reducing poverty and growing economy of the recipient countries. It has its indirect and consequent effects, achieving its political stability if it is well-implemented, as in this chapter. In this sense, the empirical findings of this study add reasons to endorse the international cooperation and developmental aid policy: the positive effect of its economic performance through the aid can also lead to other positive changes of the recipient countries, such as their political development and stability.

Chapter 4 investigates the effect of foreign aid on donor's export to the recipient. This chapter theorizes that foreign aid increases export from donors to recipients because it builds political, economic, and social exchanges that lower trade transaction costs. Using data on Korean bilateral aid and export to recipient countries between 1965 and 2015, the empirical analyses find that bilateral aid is positively associated with donor export to the recipient. The results also indicate that the effect of aid on export became even more prominent in the longer term.

This chapter contributes to the existing literature by providing a theoretical mechanism through which aid can increase donors' export to the recipient, emphasizing that aid implementation and practice promote political, economic, and social exchange between the countries. By doing so, the empirical evidence of this study provides inspiring news to the donor countries and international community, specifically those suffering intense criticism and skepticism of international aid policy. As shown in this essay, offering aid is not just for charity to the recipient countries but also gives practical and perceptible benefits to the donor's economy. Aid policy can be an investment that boosts the donor's exports and international trade. Indeed, this chapter serves as an example showing that international aid can make a win-win situation for both the recipients and the donors, which mitigates aid negativism and advocates international aid programs.

To conclude, this dissertation demonstrated that aid has positive effects on its recipient and donor countries and international relations. Theoretical and empirical analyses of each essay altogether suggest that foreign aid can be an effective international cooperation policy and developmental tool to build a better and prosperous world if carried out and monitored in proper ways.

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Curriculum Vitae

Yunhee Choi

1915 E Kenilworth Pl. 458 (c),
Milwaukee, WI, 53202 (USA)
Mobile: +1 414 379 2405
yunhee@uwm.edu

▪ EDUCATION

University of Wisconsin-Milwaukee, USA

Ph. D candidate in Political Science

September 2013 - Present

- Major: International Relations, Minor: Comparative Politics
- Dissertation: *Three Essays on the Effectiveness of Foreign Aid*

Kyung Hee University, Seoul, Korea

MA in Political Science

February 2011

- Major: International Relations
- Thesis: North Korea's Perception and its Nuclear Policy towards the United States

Kyung Hee University, Seoul, Korea

BA in Political Science

February 2009

▪ WORK EXPERIENCE

Lecturer (Upward Bound Math & Science at University of Wisconsin - Milwaukee)

June 2021 – July 2021

- Course: Introductory Korean

Teaching Assistant (Political Science at University of Wisconsin - Milwaukee)

January 2019 – May 2021

- Courses: Political Science 103 (Introduction to Political Science), 104 (Introduction to American Government), 175 (Introduction to International Relations), 370 (International Conflict), 702(Techniques of Political Science Research), and 935(Seminar in Advanced Political Science Methodology)

Research Assistant

Korean Studies Lab in Political Science Department at UWM (Project Director: Professor Uk Heo)

September 2013 - August 2018

- Project title: South Korea's Rise in the Era of Globalization: Power, Economic Development, and Foreign Relations (Korean Studies Promotion Service; The Academy of Korean Studies)

Program Assistant

Political Science 337 and 338 (International Organization and the United Nations Wisconsin Universities United Nations Summer Seminar 2017, Instructor: Professor Shale Horowitz)

June 2017

Korea Institute for National Unification, Seoul, Korea

Research Associate

March 2012 – August 2013

- Project title: Analysis of EC/EU and the Methods for Establishing South-North Korean and Northeast Asian Community
- A publication: Series #12-4 (*Analysis of EC/EU and the Methods for Establishing South-North Korean and Northeast Asian Community: Focusing on the Formation of European Community*, Seoul: KINU, December 2012)

Kyung Hee Institute for Human Society, Seoul, Korea

Research Assistant

March 2011 - December 2011

- Research Assistant for research project: "Human Security and Civil Society in the Era of Globalization" sponsored by the National Research Foundation of Korea

Kyung Hee University, Seoul, Korea

Research and Teaching Assistant

March 2009 - February 2011

- Research and teaching assistant for Professor Hyun Kim, Department of Political Science, Kyung Hee University whose expertise was Comparative Foreign Policy Analysis and American Foreign Policy

Kyung Hee University, Seoul, Korea

Teaching Assistant

July 2010

- Teaching Assistant for Paul Kennedy (J. Richardson Dilworth Professor, Yale University)
- Course Title: Today and Tomorrow - The Big, Trans-National Trends Affecting Global Society in the 21st Century (a Global Collaborative 2010 Summer Program)

▪ CURRICULUM-RELATED ACTIVITY

2014 Causal Inference Workshop in Chicago

July 2014

Global Collaborative 2009 Summer Program

June 2009

- Course: Civilization of East Asia by Kwang Ho Chun (Professor, University of London King's College)

Global Collaborative 2008 Summer Program

June 2008

- Course: Dilemmas in Asian Development by Richard Estes (Professor, University of Pennsylvania) and Military Strategy and International Relations by Kwang Ho Chun (Professor, University of London King's College)

Exchange Student Program, University of Oslo, Oslo, Norway

July 2006 - June 2007

Short-Term Education Training Program, RENMIN University, Beijing, China

April 2008

▪ VOLUNTARY WORKS

Korea DMZ Council, Seoul, Korea

Chief, External Cooperation Team

March 2012 – August 2013

KOICA (Korea International Cooperation Agency), Seongnam, Korea

Protocol Secretary

June 2011

- Senior-level officials of Palestine: Dr. Jarbawi (Minister, Planning and Administrative Development) and Musa Abu Zeid (Minister, Head of the General Personnel Council)

Kyung Hee University, Seoul, Korea

Protocol Secretary

February 2010

- Paul M. Kennedy (Professor, J. Richardson Dilworth, Yale University) and John Ikenberry (Professor, Albert G. Milbank, Princeton University)

Volunteer, participated in Work Camp hosted by UNESCO

: December 2007 (Chiang Rai, Thailand)

: June 2007 (Rome, Italy)

- Looked after homeless children and promoted cultural exchange between volunteers from

▪ SKILLS and ACHIEVEMENTS

Honors and Awards

- Emergency Grant 2020
- Scholarship for Outstanding Academic Achievement: 2008-1, 2006-1, 2005-2, 2005-1
- Best Term-Paper Award, 2009-2

Presentation in Conference

“Foreign Aid, Economic Growth, and Political Stability,” Midwest Political Science Association Annual Conference (upcoming April 14-18, 2021) – accepted

“Foreign Aid, Winning Coalition, and Economic Growth,” Midwest Political Science Association Annual Conference (2020) – accepted, but dropout due to the Covid-19 Pandemic

“*North Korea’s perception and Nuclear Policy towards the United States,*” The 4th International Academic Conference, Graduate School, Kyung Hee University, September 2010

“*Liberal Realism and American Foreign Policy: focusing on MDGs Policy* (in English),” The 1st World Civic Youth Forum, Kyung Hee University, Suwon, Korea, May 2009

Computer Skills

R and Stata (Statistical tool), MOS (Microsoft Office Specialist: MS Word, PowerPoint, Excel, Outlook) Master, Web-based tools

References available upon request