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Master's Thesis of Public Policy

**A Variety of Environmental Provisions
in East Asian FTAs and the Role of
Knowledge**

**동아시아 FTA 내 환경규정 형성에
영향을 미치는 요인 연구
: 지식의 역할을 중심으로**

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A Variety of Environmental Provisions in East Asian FTAs and the Role of Knowledge

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Abstract

This study explores the varieties of environmental provisions in East Asian Free Trade Agreements (FTAs). Focusing on the variable characteristics of the environmental provisions, this study statistically analyzed 80 FTAs concluded by the member states of the Association of South East Asian Nations (ASEAN), China, Japan, and South Korea. In addition to economic variables as much in the existing research on a trade-environment relation, this analysis highlights the role of cognitive attributes of actors.

The empirical analysis found that knowledge is a key factor that determines the strength of the linkage between trade and the environment in East Asians FTAs. In spite of an unignorable impact of political and economic power in the international negotiations, this study shows that non-material factors also have a considerable influence on the negotiation outcome. Meanwhile, at least in the East Asian context, states tend to see environmental consideration as an obstacle to trade. Since most of the East Asian countries still put more emphasis on economic growth through trade, they are relatively reluctant to link environmental consideration to trade. This empirical evidence explains why East Asian FTAs entails less substantive environmental linkage to trade, despite the East Asian states possess an average level of environmental knowledge.

Keyword: the environment and trade, Free Trade Agreements, issue linkage, trade negotiations, knowledge

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Chapter 1. Introduction

1.1 Background

Over the past decades, the number of free trade agreements (FTAs) has significantly increased. After the surge of FTAs in the late 1990s, it has become so widespread that practically all the members of the World Trade Organization (WTO) are now parties to one or more of them. According to the WTO, the number of regional free trade agreements currently in force is 296,¹ trade among FTA partners represents more than 50 percent of world trade (WTO 2016). Although the primary purpose of FTAs is to reduce tariffs and to take advantage of other reciprocal preferential treatments in trade, the agreements increasingly deal with other trade-related issues as well, such as development, labor, and the environment. As a result, currently many preferential trade agreements negotiated by governments include provisions covering those issues.

It is commonly recognized that trade and the environment are sharply conflicting issues between countries, especially between the advanced economies and emerging ones. Therefore, it is hard to narrow the gap between those countries when the issues are addressed within the frame of multilateral agreements, though it is ideal that trade rules are negotiated multilaterally through the WTO (George 2014). As a result, states increasingly attempt to link trade to environmental concern within a smaller framework, and, therefore, the number of FTAs that include environmental clauses is increasing.

¹ See the Regional Trade Agreements Information System (RTA-IS) provide by the WTO, <http://rtais.wto.org/UI/PublicAllRTAList.aspx>

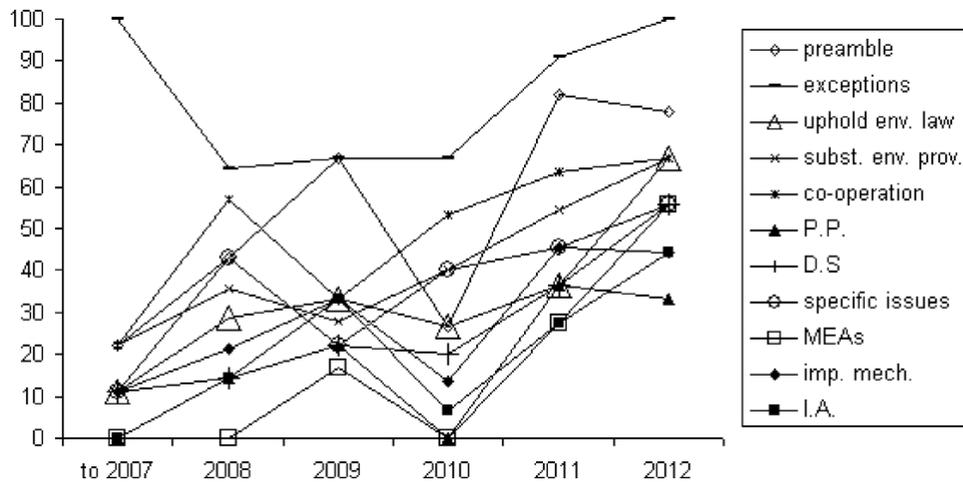
In spite of this pending issue, the reasons for including provisions on the environment in FTAs and the factors that affect their negotiation have yet to be examined in depth. Even though there are some qualitative studies on the environmental contents in FTAs by the OECD member nations and the existing studies dealing with the environmental contents of trade agreements from a legal perspective, few empirical analysis examines the factors that affect the linkage of trade and the environment in trade agreements, especially dealing with non-OECD countries.

This study is interesting for two reasons. First, it attempts to analyze the variations of environmental provisions in FTAs statistically. Given that most of the existing researches on the environmental content in trade agreements are limited to qualitative content analysis, this study could contribute to a look at the trade-environment linkage from a different point of view. Also, this analysis is timely because, although a rapidly growing number of researchers is concerned with this topic, the answer is undefined. Indeed, the driving forces of linkage between trade and the environment and the influence of them in negotiating trade agreements are quite diverse and complex.

1.2 Puzzle of the Environmental Provisions in FTAs

Environmental provisions in FTAs varies over time and place. There are various types of environmental provisions appeared in trade accords, and the formation of them also varies significantly. Concerning the content, the most environmentally progressive trade agreements include a full range of environmental chapter or are equipped with a side agreement on the environment, or both (OECD 2007). By contrast, in the most underdeveloped agreements,

from an environmental perspective, environmental issues are addressed only in the form of references in preamble or exception clauses to general trade obligations (OECD 2007).



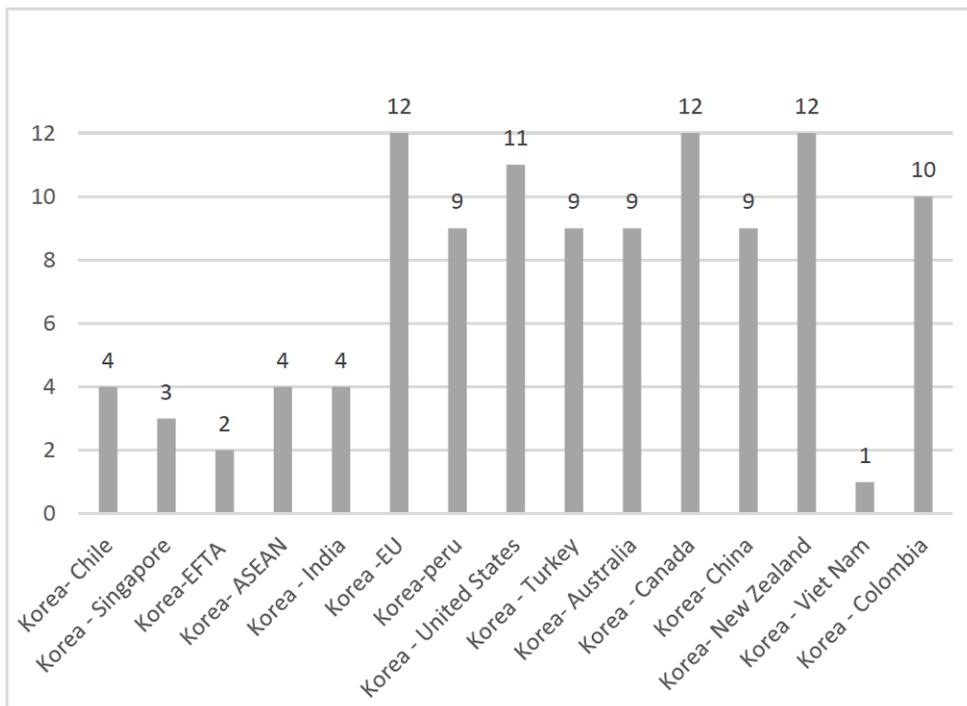
Source: George (2014, 9). Note: P.P = Public Participation, D.S. = Dispute Settlement, I.A = Impact Assessment (ex ante).

Figure 1.1 Percentage of FTAs including environmental provisions

As can be seen in Figure 1.1 the number of FTAs for each type of environmental provisions is subject to a random variation though it has shown a general upward trend. The majority of FTAs which entered into force before 2007 include only weak environmental provisions of reference to the environment and sustainable development in the preamble and environmental exceptions to general trade principle. In addition to these rudimentary clauses, more substantive ones have included in the agreements over time. Any consistent trend, however, does not exist in the incidence of more substantive environmental provisions over time.

The formation of the environmental provisions is also highly dependent on

the states involved.² Trade accords negotiated by the U.S. and the EU, in particular, exhibits an all-embracing range of environmental provisions. Most of the agreements negotiated by the two advanced countries are the well-known examples which include environmental considerations both references to the environment in the preamble and more substantive provisions, regardless of their negotiating counterparts.³ The agreements by the U.S. include environment chapter that consists of several innovative environmental provisions, with unique characteristics putting environmental issues and trade on an equal footing (OECD 2007). Australia and Japan are an exception to this pattern. They are relatively reluctant to incorporate the environment into their FTAs (Kim and Keum 2011).



Source: author

Figure 1.2 Number of environmental provisions in FTAs signed by Korea

² See Appendix for more details for the following discussion.

³ The EU exceptionally signed interim agreements with Cameroon and Cote d'Ivoire for trade in goods only before completion of negotiations (George 2014).

FTAs concluded by South Korea (Korea, hereafter) are not an exception to this variation. As shown in Figure 1.2 above, after Korea made a significant step forward with environmental provisions in the FTAs with EU, the number stiffly dropped to one in the agreement with Vietnam that came into effect in 2015. By contrast, the number of the environmental provisions in the FTA with Columbia, in 2016, rebounded to ten. This variation shows that the formation of the environmental provisions in FTAs is not only a matter of a single country but a question of relations with its trade partner. In a nutshell, the connections between trade and environmental concern “are subject to significant random variations, as well being dependent on the types of countries involved” (George 2014, 8).

The goal of this study is to explore the driving forces for the variety of linkages between trade and the environment through statistical analysis, especially regarding to the East Asian bilateral FTAs, thereby extracting lessons from the analysis. In doing so, this study can provide a better understanding of the dynamics of issue-linkage and the outcomes of trade negotiations. To this end, this study is organized as follows. Chapter 2 examines theories and the existing studies of the relations between international trade and the environment. Chapter 3 considers critical environmental content in FTAs, and the linkage attempts discovered in a variety of East Asian bilateral trade accords. Chapter 4 designs a research framework for an empirical analysis of the linkage of trade and the environment in East Asian FTAs. Chapter 5 conducts the analysis and, shows the result of the empirical test. Finally, Chapter 6 concludes that the importance of the role of knowledge in issue-linkage of trade and the environment in East Asian FTAs, and then suggests some policy implications.

Chapter 2. Literature Review

2.1 Theories of Trade and Environmental Quality

The linkages between international trade and environment are hardly a new one. Analysts and practitioners have been interested in the impact of international trade on the environmental quality. Since the primary purpose of trade is to promote a state's economic growth, an increasing trade volume inevitably affects the environmental quality.

The *Environmental Kuznets Curve (EKC)* hypothesis is one of the most traditional theory that illustrates the interaction between trade and the quality of the environment. Since the primary goal of trade is economic development, trade inevitably affects the quality of the environment. The idea behind the EKC is that, although economic growth deteriorates environmental conditions at the early stage of industrialization, later on, it improves it as countries become wealthy enough to pay for the environment conservation (Frankel 2009). A vast and well-established empirical evidence confirms the relationship at a national or regional level, and researchers have brought many sophisticated statistical analyses on this question.⁴

On the other hand, a group of theorists is more focusing on the detrimental slope of the EKC. The notion, so-called '*race to the bottom*' or '*pollution haven*' is based on a high concern that international trade and foreign investment may put pressure on countries to relax their environmental standards, leading to

⁴ For arguments of EKC, see, for example, Antweiler, Copeland, and Taylor (2001); Copeland and Taylor (2003); Grossman and Krueger (1995); Kim and Kang (2009); Seldon and Song 1994; Shafik and Bandyopadhyay (1992)

the environmental deterioration of the global system (Frankel 2009).⁵ The hypotheses argue that, with the surge of trade volume, states unavoidably consider to loosen their internal regulations to reduce costs as well sharpening the competitiveness against their international rivals; or to attract more foreign investment, in the case of developing countries. In this process, polluting industries relocate themselves to countries with less stringent environmental regulations—pollution havens, thereby deteriorating overall environmental quality.

By contrast, other theorists and practitioners assert the possibility of beneficial effects of trade, which is called the '*gains from trade*.'⁶ Based on the hypothesis, trade allows countries to attain state-of-the-art technologies and advanced standards internationally adopted, including environmental goods and services in addition to economic benefits (Frankel and Rose 2005). The hypothesis answers the question of how openness could improve environmental quality, which illustrates the beneficial slope of the EKC. The major process is the transfer of environmental standards through trade. For example, the largest state with high standards of productions technologies such as auto pollution control equipment put pressure on its trade partner as well to adopt similar standards as requirements for market access. Recently, the U.S. and the EU increasingly require their trade partner stricter environmental standards and safety inspection on the export goods. This process facilitates the rapid transfer of advanced technologies from leading countries of origin to host countries (Frankel 2009).

⁵ For arguments of the hypotheses, see, e.g., Cole and Elliott (2005); Dean (2002); Madsen (2009); Levinson and Taylor (2001); Wheeler and Hettige (1992)

⁶ For arguments of the hypotheses, see, for example, in Frankel and Rose (2005); Harbaugh, Levinson, and Wilson (2000); Jinnah and Lindsay (2016); Siebert (1977)

2.2 International Trade Laws and Environment

Legal scholars also have maintained much attention to this topic—the linkage of trade and environment. Much of qualitative studies have dealt with environmental provisions in various types of trade agreements, from a legal perspective, focusing on the compatibility of those provisions with the rules of the WTO and the existing multilateral environmental agreements (MEAs).

Regarding the conformity of domestic environmental content to the general trade laws, much of the scholars have explored the recent trade-related dispute settlement rulings.⁷ These analyses mostly deal with how the environmental issues arose from bilateral trade relationship are interpreted in the context of multilateral trade. Meanwhile, a slew of studies has maintained discussions on the relations of MEAs and the environmental provisions included in trade law. They have tried to give a better understanding about how FTAs influence global environmental governance through linkage with MEAs; and the implications of FTAs' environmental clauses for international environmental law making.⁸

Other studies have focused on identifying a comparable pattern of environmental provisions between FTAs negotiated by countries. These articles have attempted to find out and juxtapose the environmental contents contained in various regional trade agreements and illustrate how these rules have changed over time and place.⁹ George (2014) explores trends of environmental provisions appeared in the recent FTAs and concluded that the increase in substantive environmental provisions stems from political mandates and experiences of countries. Though these studies cover a broad range of

⁷ See, for example, Shaffer (2013); Kulolesi (2011)

⁸ Bartels and Ortino (2006); Jinnah and Morgera (2013)

⁹ See, for example, George (2013); Jinnah and Morgera (2013); Kim and Keum (2011); Lee (2016); OECD (2007)

environmental provisions, scholarship surrounding FTAs has been mostly descriptive and lacks a systematic frame of analysis.

2.3 Issue Linkages in Trade Negotiations

A part of political scientists has dealt with trade-environment relation with perspective to the issue-linkages in the international negotiation. They consider issue-linkages as a tool to overcome political, economic strife in the process of international trade talks. Haas (1980) examines the reason why states create international regimes, highlighting the role of knowledge in the definition of states' goal and national interest. He explores the various patterns of issue-linkage and the dynamics of them illustrating the systematic interplay of knowledge and power inequalities between negotiating states.

Aggarwal (2013) argues that the U.S. has consistently and actively linked economic issues and noneconomic issue in the act of trade negotiations since the mid-1980s. From this perspectives, he examines the patterns of linkages to several trade-related issues including security, labor, and the environmental issues appeared in U.S. FTAs and the determinants for the varieties of linkage patterns. He emphasizes that, because the outcome of issue-linkage is possibly not the same as originally intended, states should consider domestic pressure; power asymmetry between the negotiating parties; and substantiveness of the linkage, and decide whether they would use the linkage for the purpose of achieving the original goal or only obtaining a leverage in negotiations.

Koo and Jho (2013) examines the linkage between beef import and automobile tariff rate in the US-Korea FTA negotiation. They compared the talks in the 1990s and 2002 regarding chief negotiator's autonomy, their

institutional interests, as well as the domestic constituency, arguing that Korea can change the size of win-set through issue-linkage, and come into agreement on the FTA with the U.S.

While there are a lot of existing researches that deal with issue-linkage in the international trade negotiation, most of the studies on FTA conducted by Korean researchers are put more focuses on the economic effect of FTA on national welfare and economic variables such as trade volume, tariff rate, and economic integration.

Chapter 3. Environment in Free Trade Agreement

3.1 Key Environmental Provisions in FTAs

OECD (2007) examines that the range of the main provisions dealing with environmental elements has frequently been discovered in current FTAs. According to the organizations (2007), many preferential trade agreements, especially the most progressive ones from the environmental perspectives, include a separate full-scale Environment Chapters and other side agreements on the environment. On the other hand, several agreements are limited to only making reference to the environment or sustainable development in the preamble; and including general exceptions invoking GATT Article XX or GATS Article XIV.¹⁰ “Between these two poles is a variety of more or less detailed approaches to the environment” (OECD 2007, 14).

Most of the FTAs, the more recent ones, include an explicit reference to a resolution to promote sustainable development, which implies the cooperation in the area of environmental, economic.¹¹ These clauses are one of the most common way to address the environment in trade agreements in line with the Doha development agenda, regardless of developing countries and developed countries (Kim and Keum 2011).

¹⁰ GATT Article XX (general exception) stipulates some specific cases where WTO members may be exempted from GATT rules, including the necessity to protect public morals, human or health, and national security. Many interpret that the environment is included in a protection of human and health (WTO, https://www.wto.org/english/tratop_e/envir_e/issu3_e.htm).

¹¹ Agreements which include general references to environmental protection, for example, are the NAFTA and all consecutive agreements concluded by Canada and the U.S.; MERCOSUR; a majority of EU FTAs; recent agreements signed by New Zealand, and most of the FTAs signed by Korea, China, and Singapore (OECD 2007).

Table 3.1 Key Provisions addressing environment in FTAs

Preamble	References to the environment or sustainable development in the preamble.
General exceptions	Environmental exceptions to trade disciplines invoking GATT and GATS
Not relaxing the existing environmental laws	Commitments to not lowering the existing environmental standards to enhance trade
Environmental goods and services	Language to encourage and promote the trade of environmental goods and services
Consultations and information exchange	Consultations and exchange of information on environmental matters
Enforcement of national environmental laws	Commitments to effectively enforce national environmental laws.
Environmental cooperation	Cooperation and capacity building mechanisms in the field of environment.
Environmental chapter in RTA	Comprehensive environmental chapter or accompanied by an environmental side agreement, or both
Specific provisions on MEAs	Language to reconcile commitments under the agreement and regional or multilateral environmental agreements (MEAs).
Public participation	Mechanisms for public participation in the implementation of the agreement.
Public submission	Procedural guarantees and public submissions processes to ensure enforcement of domestic environmental laws.
Formal dispute settlement mechanism for environmental matters	Binding dispute settlement mechanisms to the environmental obligations.

Source: OECD (2007, p.27), partly rearranged by author

For the nature of environmental provisions, George (2014) categorized more substantive provisions which include the six components— Environmental

cooperation, Environment Chapter, Public Participation, Public Submissions, specific provisions of Multilateral Environmental Agreements (MEAs), and Dispute Settlement Mechanism (DSM)—are the more substantive than other environmental rules.

More FTAs increasingly count environmental considerations into the body of the agreement, in addition to the simple reference to the environment in the preamble (OECD 2007). The most environmentally progressive agreements include a far-reaching Environmental Chapter which stipulates from the parties' environmental objectives and commitments to procedural guarantees in detail. These agreements deal with environmental commitments and trade obligations on a practically same basis.¹²

Some preferential trade agreements also include Environmental Cooperation between the parties. Environmental cooperation refers to a collective effort between parties to improve their environmental management capability, including cooperation on the existing environmental policies, exchange of environmental knowledge, and joint action against environmental problems both sides face (Kim and Keum 2011). The areas of cooperation vary significantly and depend on various factors, such as on trade partners' capability to participate in cooperation or not, or on whether they share common borders (OECD 2007). These range from general cooperation commitment, as can be found, for example, in the Euro-Mediterranean agreements¹³, to partnership in one specific area in which the parties have a particular interest, such as a cooperation clause on compressed natural gas technologies and policies in the Korea-Singapore

¹² The North American Free Trade Agreement (NAFTA) is a good example. The agreement incorporates detailed, legally binding environmental provisions. All the subsequent U.S. RTAs also include both environmental chapters and in separate instruments on environmental issues (OECD 2007).

¹³ The agreement is characterized by a soft law language in their environmental cooperation, such as “best-endeavor” (Duran and Morgera 2012)

agreement.¹⁴ The broader cooperation arrangements commonly are accompanied by a clause on the establishment of relevant institutions, and this type of collaboration is possible only when regional integration progress to a considerable degree (OECD 2007).

Compatibility of MEAs and trade agreements is a complicated issue in the multilateral trade negotiation in WTO. Thus, a group of well-established bilateral trade agreements includes specific provisions on MEAs (OECD 2007). As the best-known example, the North American Free Trade Agreement (NAFTA) Article 104 explicitly spells out that rules of MEAs, in principle, take priority over that of NAFTA when those clauses conflict. Meanwhile, as can be seen in Korea-US FTA (KORUS FTA), the U.S. obligates its counterparts to enter into a specific MEAs before trade negotiation, in compliance with the U.S. Trade Act of 2002 (Kim and Keum 2011).¹⁵

DSM on environmental provisions is a barometer that identifies whether states put trade and the environment on an equal footing or not. Based on the study from OECD (2007), three types of implementations procedure frequently appear in FTAs: state-to state mechanism, public submissions, and submission to a super-national organization such as EU commission and EU court. The third is only for EU that have long experience of economic cooperation and well-established regional institution (Kim and Keum 2011). Most common way of

¹⁴ The Korea- Singapore article 18.9 (environment) stipulates as follows: “Desiring to promote closer co-operation between interested organizations and industries of the Parties in the field of CNG technologies and applications to environmental protection, the Parties have concluded a Memorandum of Understanding to facilitate such cooperation.”

¹⁵ KORUS FTA explicitly lists the seven MEAs that both parties can : the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES); Montreal Protocol on Substances that Deplete the Ozone Layer; the Protocol of 1978 Relating to the International Convention for the Prevention of Pollution from Ships; the Convention on Wetlands of International Importance Especially as Waterfowl Habitat; the Convention on the Conservation of Antarctic Marine Living Resources; the International Convention for the Regulation of Whaling; and the Convention for the Establishment of an Inter-American Tropical Tuna Commission)

DSM is a state-to-state mechanism. Most of the States who adopt dispute settlement process on the environmental problem have consultation procedure on the environmental issue; and arrangement and advice from a particular organization composed of environmental experts and specialists. However, as far as stipulated otherwise, a dispute on environmental provisions cannot invoke a general dispute settlement procedure applied to overall agreements. KORUS FTA's environmental chapter is also "linked to sanction-based dispute settlement although several consultative channels must be exhausted, prior to seeking remedy under the dispute settlement clauses" (Jinnah and Morgera 2013, 335).

Public Submission is a procedural guarantee that allows the public of parties to invoke the environmental articles to ensure enforcement of domestic environmental laws. This provision aims to prevent trade partner from relaxing its national environmental standards to obtain comparative advantage (OECD 2007). NAFTA, for example, adopted public submission mechanism to enforce its domestic environmental laws more effectively and efficiently (Kim and Keum 2011). However, it is hard to deal with the environmental issue only to a limited extent since non-governmental sector leads the procedure. Also, it is highly possible for developing countries who do not have adequate capacity to implement a domestic environmental law to face a lawsuit, and therefore, public submission mechanism tends to be adopted by only FTAs signed by advance states, such as the EU, the U.S., and Canada.

As illustrated above, environmental provisions in FTAs vary in their scope and depth. Though environmental contents appeared in FTAs do not reflect all about the position of negotiating parties on the trade and environment nexus, it is relevant to interpret the texts to understand "how the parties may treat situations where the environment and trade interact (OECD 2007, 24)."

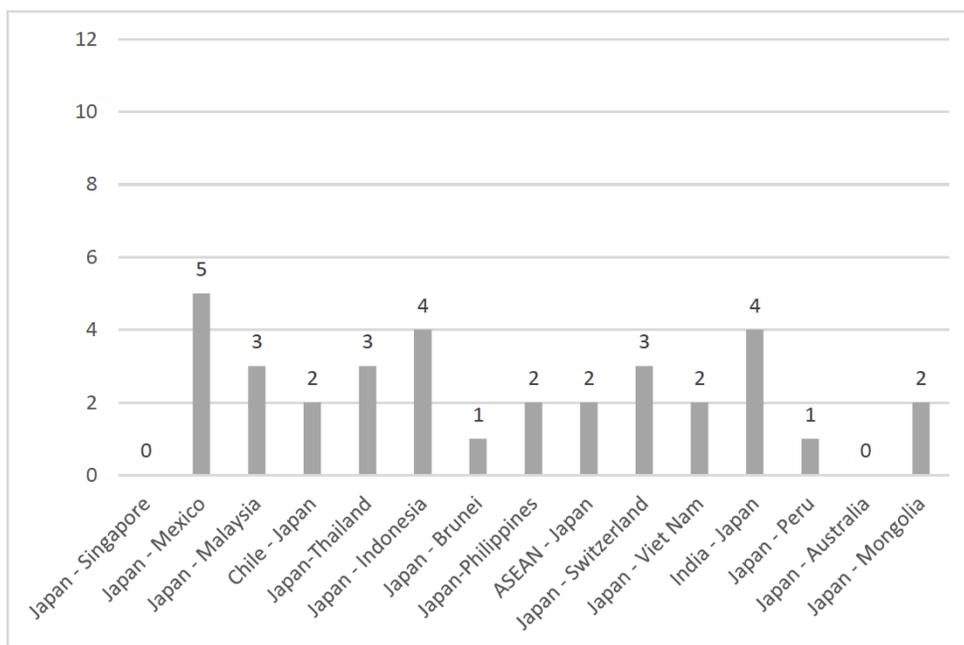
3.2 Trade-Environment Nexus in East Asian FTAs¹⁶

Among East Asian countries, Korea exhibits particularly all-encompassing environmental provisions. Before Korea-EU FTA, most of Korean FTAs include loose environmental provisions, which are limited to a reference to sustainable development in the preamble or general exceptions based on GATT. As mentioned in section 1.2, however, Korea marks a significant step forward in environmental content in the FTA with EU, which entered into force in 2012. The agreement includes a comprehensive chapter on trade and sustainable development, which has been a benchmark for the development of environment chapter of all subsequent negotiations (George 2014). KORUS FTA's environmental chapter opens more possibility to resort to the dispute settlement provisions on environmental issues although several consultative measures must be exhausted before seeking remedy under DSM. Although the inclusion of environmental provisions stiffly dropped in the agreement with Vietnam in 2016, the general trends have been maintained, with the adoption of more substantive provisions in FTAs with New Zealand and Colombia.

Japan has been concluded FTAs with the developing countries, except for the agreement with Switzerland in 2010. In spite of Japan's massive trade volume and the highest level of environment,¹⁷ most of Japan's FTAs do not adopt substantive environmental provisions. It should be noted that the agreement with India and Indonesia includes articles for fortifying environmental standards and enforcement of domestic environmental laws, respectively. Also, Japan-Mexico FTA contains provisions for promoting trade of environmental goods and

¹⁶ In this section, see appendix 1 for more details.

¹⁷ Japan's environmental awareness score is 99 out of 100, according to the Gallup poll in 2007-2008 (Gallup, 2009). See Appendix 2 for other states' scores.



Source: author

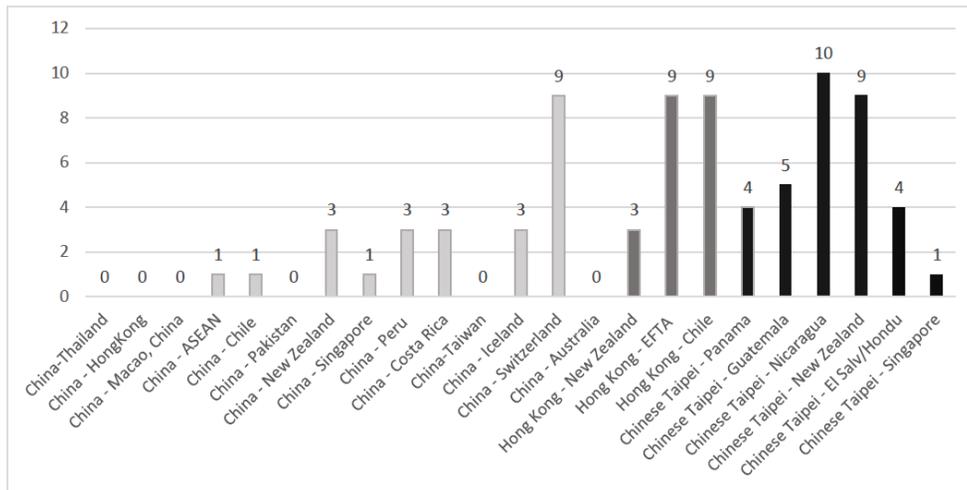
Figure 3.1 Number of environmental provisions in FTAs signed by Japan

services. Most of Japanese FTAs emphasize environmental cooperation more than other substantive provisions.¹⁸ This seems because of Japan's strategic attempts to increase its influence on the developing countries, in line with its consistent efforts to enlarge environmental cooperation with Southeast Asian countries through official development assistance.

China, as can be seen in Figure 3.2 below, has been reluctant to include environmental provisions in its FTAs. Many of its FTA, even the most recent one with Australia, do not include any of environmental contents, most of which are limited to the preamble and general exceptions. The agreement with Switzerland it the only Chinese FTA that adopts environmental chapter and

¹⁸ For example, Japan-Thailand FTA which includes a joint development project for the lower Mekong.

specific articles on MEA. However, China is relatively comfortable to adopt provisions on environmental cooperation, which are included in the agreements with New Zealand, Peru, Costa Rica, Iceland, and Switzerland.



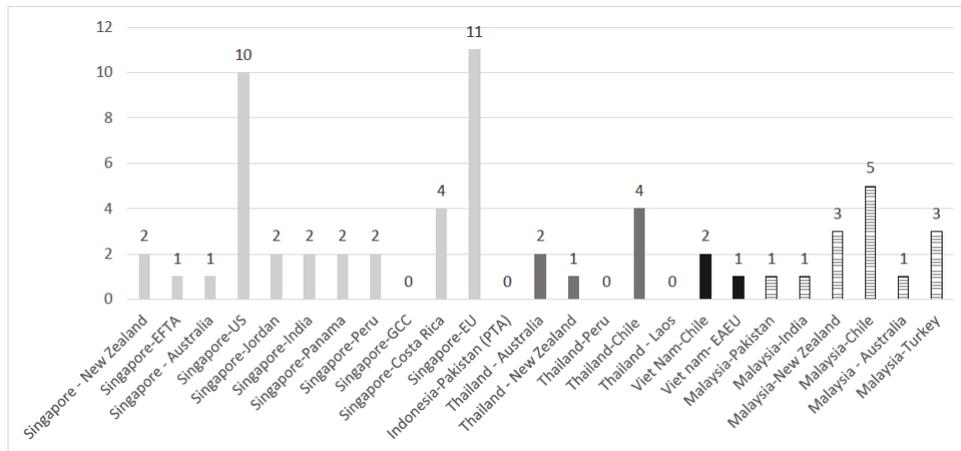
Source: author

Figure 3.2 Number of environmental provisions in FTAs signed by China, Chinese Taipei, and Hong Kong

Hong Kong marks significant step forward in the inclusion of substantive provisions, with the conclusion of the agreement with the European Free Trade Association (EFTA). Chinese Taipei’s experience is not easy to interpret, for the substantive environmental provisions. Its agreement with Nicaragua in 2008 include almost full range of environment provisions while very little in it FTA with El Salvador and Honduras also taken into force in 2008. Besides, the most recent one with Singapore contains articles on general exceptions only.

Although member states of the Association of South East Asian Nations (ASEAN) have also gradually expanded cooperation on the environmental matters, their FTAs remain reluctant to link environmental consideration to trade. Except for the Singapore FTAs with the U.S. and the EU, most of the agreements

concluded by ASEAN states only include rudimentary environmental clauses.



Source: author

Figure 3.3 Number of environmental provisions in FTAs signed by ASEAN countries

To sum up, regarding parties involved, most FTAs concluded by the U.S. and the EU include a comprehensive range of substantive environmental provisions. Korea also incorporates environment substantively in its agreements, compared to other East Asian countries. By contrast, the incidence of environmental provisions in FTAs involving Peru and Chile depends on the negotiating partners.

Concerning the nature of the provisions, a large number of East Asian FTAs prefer to adopt introductory provisions, such as the preamble or general exception. Meanwhile, states relatively feel free to include provisions for environmental cooperation among substantive provisions. This seems because environmental cooperation is less legally-binding than other environmental rules (Kim and Keum 2011), as well developing countries can enjoy benefits including technology transfer through the cooperation.

Chapter 4. Research Design

4.1 Conceptual Framework

This study aims to identify the driving forces for trade-environment linkages in FTAs and their impact, particularly about the bilateral preferential trade accords negotiated by the member states of the ASEAN and those by China, Japan, and Korea. Thus, central research question of this study is:

What are the key factors that affect the trade-environment linkages in the East Asian FTAs, in addition to the common variables, such as GDP, GDP per capita, geographic proximity, and population, etc., which the existing studies have traditionally considered in the analysis of trade-environment relations?

As scholars have identified specific mechanisms of issue-linkages, states can deploy environmental linkages in various forms. Nonetheless, not all the environmental linkages fare as intended. Some trading relations may contain the necessary conditions to facilitate a successful connection between trade and the environment while others not. There is a need to consider not only the extent to which linkages are based on consensual knowledge or power but also factors such as relative power distribution between negotiating parties, to understand how such variations may be possible (Aggarwal and Govella 2010).

In terms of the basis of linkages, “if two issues are perceived by actors to be unrelated but become linked together in international negotiations, this can be considered a power-based connection or tactical linkage” (Aggarwal 2013). By contrast, if the issue is considered to intellectually coherent, then the linkage can be named as “substantive linkage” (Haas 1980). Thus, if both parties see the

linkage as a result of a power play, then the tie is tactical. If both sides consider the linkage is based on knowledge consensus, then the connection is substantive.

Different from this simple situation; however, more complicated dynamics—where negotiating parties do not agree on the basis of linkage—can be considered. For instance, the target country unwillingly may agree on the linkage demand from the linker even though it does not see issues to be connected substantively, due to a perceived asymmetry of power. Aggarwal and Govella (2010) named this type of linkage as “failed substantive linkage—where failure refers the basis of cooperation, *not* the ultimate outcome of agreeing to the policy pushed by the linker.”¹⁹ From this discussion on issue-linkage, the following factors need to be considered in analyzing environmental linkage in bilateral trade negotiations.

4.1.1 Knowledge

Negotiations concerning specific issues usually deal with on the basis of an accepted body of knowledge (Haas 1980). For example, economists who participate in trade talks have generally accepted the knowledge of tariffs and the effect that has on the benefits derived from trade; environmental experts, in general, agree on the major causes of greenhouse gases and how they affect the global environment. The knowledge is being applied to policy making and, in international negotiations, is a tool for facilitating intellectual connections between actors.

Haas (1980) examines the definition of knowledge and the role of it in international negotiations as follows:

“Knowledge is the sum of technical information which commands sufficient

¹⁹ See Aggarwal (2013) for more detailed discussion on linkage types and the basis of linkages.

consensus at a given time among interested actors to serve as a guide to public policy designed to achieve some social goal, (Hass 1980, 367).” and in the international community the sharing of “knowledge among governments otherwise in opposition to each other accelerate cognitive convergence” (Hass 1980, 368).

According to him, the nature of knowledge—whether knowledge originate in a wealthy and powerful country; or the possibility of manipulation of knowledge by a class that is possibly benefiting from it—are not significant (Hass 1980). All that matters are “technical theory and information, in fact, being applied to policy making across the lines of cleavage associated with its origin” (Hass 1980, 369).

It may be hard to say knowledge can change the nations’ power position itself even though knowledge facilitates the linkage between issues in international negotiations. It is also true that successful negotiations for dealing with trade-offs rest on the harmony of interests as much as on consensus of knowledge. However, transnational exchange of knowledge could change the original view or attitude toward the issues and the priorities. As Haas aptly puts that “the old national interest is questioned when a new claim to truth is generally accepted and when this claim is considered to contain a remedy for some generally experienced social ill (Hass 1980, 369).” Therefore, the linkage may become more stable and substantive when knowledge actively fares in the process of international negotiation.

4.1.2 Total Trade Volume

Total trade volume of a country reflects the level of openness as well as an economy size of a country. Trade have an impact on states' environmental consideration through various ways. Trade is not only the most powerful means to accelerate a nation's economic growth but also a vehicle that promotes the transfer of international standards and innovative technology. Both processes influence the states' behavior and view on the environment. Thus, it is necessary to consider countries' trade volume in analyzing the environmental linkage to trade.

Trade volume may affect the trade-environment nexus by two different directions. On the one hand, as the theory of 'gains of trade' puts, trade promotes the global ratcheting up of environmental standards. Openness could encourage economic growth through which possibly make states rich enough to have sufficient capability to improve the environment. Also, trade commonly plays a significant role in the diffusion of environmental norm through trade agreements (Jinnah and Lindsay 2016). In this context, trade volume may have a positive influence on the linkage between trade and the environment.

On the other hand, because of significant trade volume, states may hesitate to include environmental provisions in their FTAs. Some states, especially developing countries, tend to consider environmental consideration as an obstacle to trade with the fear of so-called 'green protectionism'²⁰. States tend to be concern that the inclusion of environmental provisions put a disguised limitation on trade, thereby hindering economic growth. In this case, a large trade volume may be a reason for less substantive environmental provisions in trade

²⁰ The notion means "the use of measures for a narrow protectionist purpose under the guise of addressing legitimate environmental goals," according to the WTO (WTO 2003).

agreements.

4.1.3 Trade Asymmetry

Another key aspect of the issue-linkage process is the role of power (Aggarwal and Govella 2010). It is difficult to imagine that knowledge is so consensual that states agree on an agenda without any reward or threat in international negotiation. (Hass, 1980). In an international context, the distribution of power between the states is also very critical in negotiations, in addition to absolute political or economic power itself. When environmental consideration arises in trading negotiations, for example, it is easier for a powerful country to push its partners to include environmental provisions in their agreements. By contrast, it is hard for smaller countries, which usually have less bargaining power in the negotiation, to insist environmental consideration when the bigger partner do not want to do so, even though they think that trade and environmental issue are substantively related. “Issue-linkage will not succeed if the states with a strong stake in the existing distribution of interest, and the capability to control it, prefer to keep thing as they are” (Hass, 1980).

In other words, asymmetry of power between the initiating country and the target country is an influential factor that determines the strength of linkages between other issues and trade in international negotiations (Aggarwal 2013). If the power balance is very asymmetrical, weaker countries cannot help considering their dependence on their trade partners and taking into account their power position. The power that comes from an asymmetrical relationship is usually employed to gain concessions from counterparts in either the political or economic domain (Hirschman 1980; Axelrod and Keohane 1985). As a result, in an international context, the target country may deny that issues are

substantively connected but accept the demands from the linker because of a perceived asymmetry of power (Aggarwal and Govella 2010). When power asymmetry dominates the bilateral trade agreements, the linkage between trade and the environment can be seen as more tactical, rather than substantive.

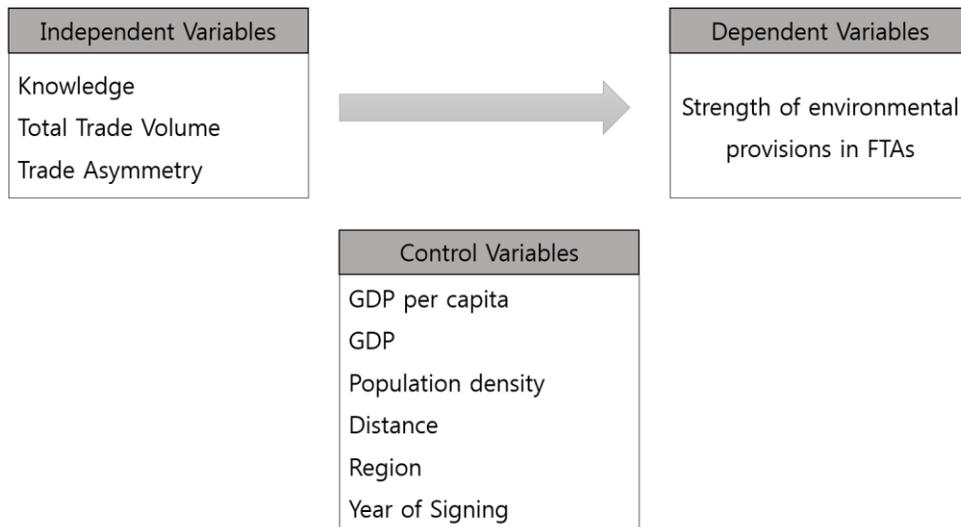


Figure 4.1 Conceptual Framework of Study

A conceptual approach to this study is presented in Figure 4.1 above, which illustrates that several elements—knowledge, total trade volume as a traditional economic factor, trade asymmetry as a factor concerning power balance, and other exogenous factors—can influence the development of environmental provisions in bilateral trade accords.

The dependent variable is the strength of the environmental provisions in East Asian FTAs, which means the extent of linkage between trade and the environment. In order to figure out alternative variables that influence the trade and environment nexus, this analysis introduces control the variables that are typically thought to affect both trade and the environment, and the linkage of the

two topics. Control variables include GDP, GDP per capita, population density, the distance between two countries, and the year when parties signed FTAs, all of which are commonly used in analyzing trade-environment relation by economists. This systematic analysis of this framework would give an understanding of the effects of different types of factors on the linkage between trade and the environment.

4.2 Hypothesis

Before turning into the empirical tests on the linkage of trade and the environment, this section consolidates propositions articulated in the form of hypotheses. Given the mediating role of knowledge in the issue-linkages process in international negotiations, as mentioned in the previous section, the first hypothesis is suggested as follows:

H1. States possessing a higher level of environmental knowledge are more likely than others to agree on stronger environmental provisions.

Secondly, theories and studies reveal that trade is an effective vehicle of international environmental standards, and promote diffusion of multilateral environmental norms. Thus, large trade volume may have a positive influence on the linkage of trade and the environment. From this, a second hypothesis is developed:

H2. States with larger trade volume are more likely than others to agree on stronger environmental provisions.

Finally, if the power balance is extremely asymmetrical, the target country

would agree on the linkage because of the consideration of its dependence though it denies that the issues are connected actually. In this case, the outcome of negotiation would be less consensual than where both parties fully agree on the existence of issue-linkage and thus can be illustrated as a ‘failed substantive linkage.’ Therefore, the final hypothesis is:

H3. RTAs negotiated by states of asymmetrical trade relationships are more likely than others to contain weaker environmental provisions.

4.3 Operationalizing Variables

4.3.1 Sample and Unit of Analysis

The unit of analysis is bilateral preferential trade agreements. Also, this study is limited to the FTAs signed by ASEAN member states and three major northeast Asian countries—China, Japan, and Korea. The values are coded and computed for the dependent variable based on the legal texts of the agreements. For the explanatory variables, the data are collected from the international database including WTO, World Bank, and IMF. All the data are collected based on the relevant year when an FTA is signed by all the parties to it. The final sample includes 80 preferential trade agreements in total.

4.3.2 The Dependent Variable

The dependent variable is the strength of the environmental provisions in the FTAs. The concept would reveal the strength of environmental linkage in trade agreements. To compute the strength index, the coding depends on the types of

environmental provisions included in the accords.²¹ According to the precedent studies concerning the strength of regulations or the strength of knowledge, they usually they usually doubled the score on more substantive or strict rules.²² Thus, this study also assign the value to the environmental provisions based on the substantiveness: 0 is assigned if there are no environmental provisions in the agreements listed in Table 3.1, 1 is assigned to basic—not substantive—environmental provisions in the agreements, and 2 to more substantive provisions²³, and then totaled the score. The value for the index ranges from zero to 18. The index of the strength of the environmental provisions is calculated as follows:

$$\text{Strength} = (\text{no. of more substantive provisions} \times 2) + (\text{no. of other provisions})$$

4.3.3 Knowledge

Environmental knowledge “can be defined as one’s ability to identify a number of symbols, concepts and behavior patterns related to environmental protection (Vincente-Molina, Fernandez-Sainz, and Izagirre-Olaizola 2013).” To measure knowledge about an environmental issue, environmental awareness is introduced as a proxy of knowledge is in this study. Environmental awareness means “a state of being aware, having knowledge about, and being conscious of the environment in which people live, which tends to influence people’s development and pro-environmental behavior (Harju-Autti and Kokkinen 2014).”

²¹ The analysis presented here covers only the incidence of these provisions and not their specific content.

²² See, Flamm (2006) or Gollwitzer, Kvintradze and Prakash (2010). For example, answers related to the question “Are there any numerical fiscal rules or targets?,” Gollwitzer. et al. assigned 0 if there are no fiscal rules or targets, 2 if there are fiscal rules but not codified by law, and 4 if there are fiscal rules encoded in the law

²³ The six components—Environmental Chapter; Environmental Cooperation; Public Participation; Public Submissions; Specific provisions on MEAs; and DSM—are the more substantive, or important than other environmental provisions (George, 2013).

Given the subject of study, environmental awareness is defined here as for how well the public of a country is aware of the global climate change. This study uses the Gallup World Poll conducted in 2007-2008 to estimate the level of environmental awareness.

There are various indices to measure the level of environmental awareness and environmental attitudes, but most of them are based on the theory of marketing and consumption behavior theories. Or, some indices lack data necessary for the analysis although the conceptualization of an index is appropriate to this analytical purposes. Thus, this analysis chooses to use the Gallup poll although there is some time difference between the years when the poll was conducted and when an FTA was signed.

The Gallup poll conducted the first extensive survey of global opinions about climate change. It surveyed individuals from 128 countries who are fifteen years of age and older, posing two questions: 1) How much do you know about global warming or climate change?; and 2) How serious of a threat is global warming to you and your family? (Gallup, 2009). Based on the survey result, the Gallup assigned a score by country indicating a country's environmental awareness level.

In this analysis, the score of the first question only is used in consideration of the operational definition of knowledge. The score of each country is utilized in the analysis. In the case when a party of the agreement is an economic union composed of several states, the average score of the counties is utilized to estimate the overall awareness level.²⁴ The full score of the index is 100, and

²⁴ The Gallup data does not include a few states' awareness score, e.g. Croatia, Cyprus, Slovenia and Slovakia of EU; Myanmar of ASEAN; Liechtenstein of EFTA. The analysis does not take these countries into consideration in estimating the average awareness score.

the score of the countries discussed in this study ranges from 22 to 99.²⁵

4.3.4 Total Trade Volume and Trade Asymmetry

To consider economic weight in the trade relationship between two states, total trade volume was used. Total trade is a country's total merchandise trade volume (import + export) to the world in the year when an FTA in question is signed by all the parties of it, and measured in US dollars.

Trade asymmetry, used to capture relative power, is based upon Barbieri's asymmetry measurement (1996, p.85). This formula is widely used in the existing literature to estimate whether a given trade partnership is valuable, relative to other trade relationship (Barbieri, 1996). Trade share needs to be calculated at first to create asymmetry index. Trade share measures the proportion of dyadic trade over total trade, both import and export flows, for each state with its trading partners. For example, for dyad_{ij}, which is composed of the States i and j, i's trade share is calculated as follows:

$$(1) \text{ Trade Share}_i = \text{Dyadic Trade}_{ij} / \text{Total Trade}_i$$

Asymmetry is calculated in Equation (2), measured by the absolute value of the difference in trade shares composing the dyad, with higher scores indicating greater inequality of trade relations.

$$(2) \text{ Trade Asymmetry}_{ij} = |\text{Trade Share}_i - \text{Trade Share}_j|$$

²⁵ For more details on all the states considered, see appendix. 2

4.3.5 Introducing Control Variables

To explore whether the relationships between the strength of environmental provisions and, environmental awareness and trade might be confounded by factors affecting both environmental provisions and trade, I control for factors consistently identified in the literature as altering the trade and trade negotiations of dyadic relations. These factors, GDP, GDP per capita, distance between two countries, and population density, year are all theoretically interesting in their right. Many of arguments made on the control variables are linked directly or indirectly to the environmental consideration between countries and trade relations.

GDP and GDP per capita indicates a country's economic size and the purchasing power of trading countries, respectively. It is traditionally used in the analysis of a countries trade flows. Controlling for the influence of GDP and GDP per capita is of particular importance since several previous studies assume that there is a high correlation between economic size and trade. Population density is the other variable used typically in the analysis of trade flow.

Empirical tests have consistently revealed that contiguous counties have both higher level of trade and a greater degree of cooperation compared to distant countries. To calculate geographic proximity, the distance between the two states' capital cities was employed. In the case of the one party is an economic union, not a single state, for example, ASEAN, EU, and EFTA, the capital city of the leading country of the economic union was utilized.

Region is a dummy variable indicating whether an FTA is one between East Asian countries or one with state outside the region. Many existing studies identify that countries which share borderline or located in the same area easily share the same interest and issues (OECD 2007). Therefore, the region factor would affect the environment-trade linkage in FTAs. For the dummy variable, 1

assigned when it is intra-regional FTA, or 0 otherwise.

The year is another exogenous variable to be controlled. The level of the environmental provision included in the FTAs would be improved and sophisticated through 'learning effect' or 'institutional isomorphism' over time. Also, the overall efforts to cooperate in the field of the environment have been fortified, with the deepening global environmental concern. Due to this, the environmental content included in trade agreements can be influenced by year when an FTA is signed by states.

Table 4.1 Variables and operational definition

Variables		Operational Definition	Source
Dependent variables	Strength of environmental provisions in FTAs	A sum of the scores of environmental provisions included in the agreements	Calculated by author
Independent variables	Knowledge	Public awareness on climate change of each country	The Gallup poll (2007-2008)
	Total trade volume	Sum of total export and total import to the world measured in US dollars	WTO
	Trade asymmetry	Trade asymmetry _{ij} = Trade share _i - Trade share _j	Raw values collected from WTO
Control variables	GDP	GDP of the year of signing, measured in US dollars	IMF
	GDP per capita	GDP per capita of the year of signing, measured in US dollars	IMF
	Distance	Geographical distance between the states' capital cities	Calculated using 'DistanceFromTo' (http://www.distancefromto.net/)
	Population density	Number of person per km ²	World Bank
	Region	Dummy variable that indicates whether an agreement is intraregional FTA or not	WTO
	Year	The year when all the parties signed an FTA	WTO and ASIA REGIONAL INTEGRATION CENTER

Note: Data of total trade volume, Trade asymmetry, GDP, and GDP per capita are collected based on the relevant year when a FTA is signed by all the parties to it.

Chapter 5. Analyses

5.1 Model Specification and Data Analysis

In order to explore whether and how the environmental knowledge and character of trade relations affect the strength of environmental provisions in FTAs, this study will use Gravity Model of international trade.

The gravity model has been used in the analysis of bilateral trade pattern. The model suggests that bilateral trade flow has a positive relation to economic size, which is often measured by GDP, of two states, and have a negative relation to the distance between the two states (Head and Mayer 2013). Many analyses have employed the model to analyze factors that may influence on bilateral trade patterns, such as whether the countries share a land border; whether they have regional integration agreements; whether they have a common language, legal institution or shared colonial experiences. The gravity model has been also applied to analysis of a ‘dyadic’ relation as well, such as capital flows²⁶, migration²⁷, and traffic²⁸.

Starting from the basic concept of the gravity model, this analysis will add more variables—knowledge, total trade volume, trade asymmetry, region, and

²⁶ See, for example, Bellos, S., & Subasat, T. (2012). Corruption and foreign direct investment: A panel gravity model approach. *Bulletin of Economic Research*, 64(4), 565-574.; Stone, S. F., & Jeon, B. N. (1999). Gravity-model specification for foreign direct investment: A case of the Asia-Pacific economies. *The Journal of Business and Economic Studies*, 5(1), 33.

²⁷ See, for example, Karemera, D., Oguledo, V. I., & Davis, B. (2000). A gravity model analysis of international migration to North America. *Applied Economics*, 32(13), 1745-1755.; Agasisti, T., & Dal Bianco, A. (2007). Determinants of college student migration in Italy: Empirical evidence from a gravity approach.

²⁸ See, for example, Jung, W. S., Wang, F., & Stanley, H. E. (2008). Gravity model in the Korean highway. *EPL (Europhysics Letters)*, 81(4), 48005; Hansen, W. G. (1962). Evaluation of gravity model trip distribution procedures. *Highway Research Board Bulletin*, (347).

year—and establish a multiple regression model to analyze the impact of those factors on the strength of environmental provisions in East Asian FTAs.

The function of regression model is as follows:

$$\begin{aligned}
 S = & \beta_0 + \beta_1 \ln(\text{Knowledge}_i/\text{Knowledge}_j) + \beta_2 \ln(\text{TotalTrade}_i/\text{TotalTrade}_j) \\
 & + \beta_3 \ln(\text{TradeA}_{ij}) + \beta_4 \ln(\text{GDPpc}_i/\text{GDPpc}_j) + \beta_5 \ln(\text{GDP}_i/\text{GDP}_j) \\
 & + \beta_6 \ln(\text{POP}_i/\text{POP}_j) + \beta_7 \ln(\text{DIST}_{ij}) + \beta_8 \text{REGION}_{ij} + \beta_9 \text{YEAR}_{ij} + \varepsilon_{ij}
 \end{aligned}$$

In this equation, S means the strength of the environmental provisions in FTAs. Knowledge means environmental awareness of each country; TradeA means trade asymmetry between the parties of RTAs; TotalTrade means a country's total trade volume to the world; GDPpc and GDP mean GDP per capita and GDP of a country, respectively; POP means populations density; DIST means distance between the capital cities of two countries; REGION is a dummy variable indicating whether an FTA is one between East Asian countries or one with state outside the region; and YEAR means the year of signing.

To handle outliers and nonlinear relationship between the independent and dependent variables, all the variables, except for the strength and the year of signing, was transformed into logarithmic form.

The descriptive statistics are presented in Table 5.1 below. The average strength of environmental provisions in East Asian FTAs is about five, which is only about a third of full score of the strength.

Table 5.1 Descriptive statistics of variables

Variables	Obs	Mean	Std. Dev.	Min	Max
Strength	80	4.91	5.20	0	18
$\ln(\text{Knowledge}_i \text{ Knowledge}_i)$	80	8.67	0.38	7.20	9.17
$\ln(\text{Total Trade}_i \text{ Total Trade}_j)$	80	53.24	2.11	44.31	56.88
$\ln(\text{Trade Asymmetry}_{ij})$	80	-3.92	1.93	-9.01	0.14
$\ln(\text{GDPpc}_i \text{ GDPpc}_j)$	80	19.07	1.92	14.42	23.35
$\ln(\text{GDP}_i \text{ GDP}_j)$	80	53.92	2.35	46.06	58.18
$\ln(\text{POP}_i \text{ POP}_j)$	80	10.40	2.26	5.59	15.44
$\ln(\text{DIST}_{ij})$	80	8.43	0.72	5.77	9.38
REGION	80	0.29	0.45	0	1
YEAR	80	39889	1613	33409	42172

To identify the multicollinearity between independent variables, variance inflation factor (VIF) was tested. Since the VIF for all the independent variables is less than 10, and the 1/VIF is greater than 0.1, it can be interpreted that there is no multicollinearity problem among factors.

Table 5.2 Multicollinearity test

Variables	VIF	1/VIF
$\ln(\text{Total Trade}_i \text{ Total Trade}_j)$	5.73	0.17
$\ln(\text{GDP}_i \text{ GDP}_j)$	5.28	0.19
$\ln(\text{GDPpc}_i \text{ GDPpc}_j)$	3.04	0.33
Region	2.62	0.38
$\ln(\text{Knowledge}_i \text{ Knowledge}_i)$	2.60	0.38
$\ln(\text{DIST}_{ij})$	2.24	0.44
YEAR	2.01	0.49
$\ln(\text{POP}_i \text{ POP}_j)$	1.70	0.59
$\ln(\text{Trade Asymmetry}_{ij})$	1.64	0.61
Mean VIF	2.98	

5.2 Results

Table 5.3 exhibits the results of analyses of the impact of knowledge and various dimensions of trade relations on the strength of environmental provisions in FTAs.

Table 5.3 Effect of knowledge and trade relations on the strength of environmental provisions

Independent variables	Strength of environmental provisions			
	Coef. (β)	Std. Err	P> t	Standardized coef. (beta)
Knowledge	6.658***	2.030	0.002	0.489
Total trade volume	-0.917*	0.546	0.098	-0.373
Trade asymmetry	-0.142	0.319	0.659	-0.053
GDP per capita	-0.293	0.435	0.504	-0.109
GDP	1.336***	0.471	0.006	0.605
Population Density	0.772***	0.277	0.007	0.336
Distance	-0.438	1.004	0.664	-0.601
Region	-5.247***	1.707	0.003	-0.461
Year of Signing	0.001**	0.000	0.031	0.290
N (observations)	80			
R square	0.41			

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

Note: All the variables are logarithm form except for region and year of signing.

At first, this analysis explores the question of whether environmental knowledge of states would affect the linkage of trade and the environment in trade negotiations. The result reveals that environmental knowledge ($\beta=6.658$) have a positive influence on the strength of environmental provisions in FTAs, and it is statistically significant at the level of $\alpha=0.01$. Therefore, the hypothesis 1 (H1) is strongly supported by the empirical test. Accordingly, the result can be interpreted that the strength of environmental provisions increases by 0.066 if the environmental knowledge of negotiating parties goes up by 1%.

The second hypothesis is on whether states with larger trade volume are more likely than others to agree on stronger environmental provisions in their trade accords. To support this hypothesis would require total trade volume to have a positive influence on the strength of environmental provisions. The result, however, shows statistically significant at the level of $\alpha=0.1$ and a negative coefficient for total trade volume ($\beta= -0.917$). Thus, the hypothesis 2 (H2) is rejected. This means a greater trade volume inhibit the linkage between trade and the environment in trade negotiations, rather than promoting it. Specifically, if total trade volume of negotiating parties increases by 1%, the strength of environmental provisions falls by about 0.009.

Meanwhile, the evidence reveals that trade asymmetry is not statistically significant. Thus, hypothesis 3 (H3) on whether an asymmetric trading relation would impede the trade-environment linkage is not supported.

For the control variables, the economic variables—GDP, population density—that is conventionally considered in analysis on trade and environmental relations still have a positive influence on the strength of environmental linkage to trade as well. Year of signing is also revealed to be significant and have a positive impact on the strength of environmental provisions. The positive

coefficient for the year means that the more recent trade agreements they are, the more substantive environmental provisions they include. This supports an argument that the level of the environmental provision contained in the FTAs would be improved and sophisticated over time through 'learning effect' or 'institutional isomorphism.'

Meanwhile, the dummy variable region has a negative impact on the dependent variable. This signifies that FTAs between East Asian countries include less substantive environmental provisions than the agreements with outside states.

Relative influence of variables is also comparable. According to the standardized coefficient presented in the last column, GDP ($\beta=0.605$) has the strongest influence on the formation of environmental provisions in East Asian trade agreements, followed by knowledge ($\beta=0.489$) and region ($\beta=-0.461$). Trade volume, population density, and year have a similar degree of influence on the strength of environmental provisions, with the standardized β at around 0.3.

Chapter 6. Conclusion

6.1 Discussion and Policy Implications

FTAs have significantly increased since the early 2000s, with criticism that the WTO failed to guarantee a prompt decision-making process and disclosed a limitation of multilateral framework where countries are difficult to agree on conflicting issues. With this backdrop, FTA emerged as an effective tool to deal with trade-related issues, such as the environment, and therefore, countries increasingly include environmental provisions in their preferential trade agreements. However, there is no consistent pattern in the formation of environmental provisions in FTAs, and it is also highly dependent on the states involved. In a nutshell, trade and environment nexus appeared in several FTAs is somewhat amorphous.

This study began with an observation that the environmental provisions in FTAs varied over time and countries involved. East Asia is not an exception. This study examines the linkage between trade and the environment in trade negotiations by exploring the determinants of the formation of the environmental provisions in East Asian FTAs—80 FTAs concluded by ASEAN states, China, Japan, and South Korea. In addition to economic variables as much in the existing research on the trade-environment relation, this analysis highlights the role of cognitive attributes of actors and power asymmetry between the countries in international negotiations.

The main findings of this study are as follows: (1) knowledge plays a major role in trade-environment linkage in trade negotiations; (2) opposite to the

hypothesis, an increase in total trade volume has an adverse influence on the linkage between trade and environment.

The important role of knowledge explains the reason why states who possess a high level of environmental knowledge is more likely to agree on the substantive environmental provisions. Several Korean FTAs with advanced states—e.g. KORUS FTA, Korea-EU FTA, Korea-Canada FTA, Korea-Australia FTA—and Hong Kong-EFTA FTA are the examples. These agreements successfully incorporate the environment into trade agreement by adopting a range of substantive environmental provisions. By contrast, as can be seen in EU-Singapore FTA, and China-Australia FTA, in the case of negotiations between states of asymmetric knowledge level, the formation of environmental provision remains an elementary level. In other words, when the states connect the environment and trade on the basis of consensual knowledge the outcome is more substantive, compared to the case without intellectual consensus.

It also appears that the outstanding environmental linkage discovered in Korean FTAs is partly based on the effect knowledge. Korea has implemented progressive environmental policies since 2009, with an ambitious green initiative, so-called “green growth.” The effort made a contribution to increase overall environmental awareness of Korean citizen and their understanding of environmental issues. This result might make it possible for Korea to have knowledge consensus with environmentally progressive states, such as the EU and the U.S., leading to an easy compromise on the substantive environmental linkage to trade. This argument would be supported by the fact that the strength of environmental provisions has notably increased since Korea-EU FTA that entered into force in 2009.

Meanwhile, a group of East Asian FTAs—e.g. Korea-China FTA, China-

Switzerland FTA, and Chinese Taipei-Nicaragua FTA—include highly substantive environmental provisions, despite the parties of them possess a different level of knowledge. In international negotiations, the target country may not agree on the issue-linkages but unwillingly accept the linker's demand due to a perceived asymmetry of power. However, this situation could be rectified by diffusion of knowledge. Advocates of the linkage may attempt to convince their counterparts through a provision of information to lead to more substantive and stable basis for cooperation. In a nutshell, knowledge may play a role as a mediating agent in trade negotiations, and make it possible to achieve a substantive negotiation outcome with resorting to coercive pressure or punitive measures.

Regarding a negative influence of total trade volume on the issue-linkage, it appears that most of the East Asian states still consider the environmental concerns to be an obstacle to trade. In spite of a desirable attempt to address environment more effectively in a bilateral context, one of the principal purposes of incorporating environment in FTAs is a so-called 'leveling a playing field.' The premise of the notion is that states can take advantage of relaxing internal environmental standards to enhance trade and that the environmental linkage can prevent the state's attempt to lowering environmental regulations (WTO 2003). This principle is one reason why developing countries hesitate to link environment to trade. Since most of the East Asian countries remains underdeveloped and still put more focus on economic growth through an expansion of trade, an increase in trade volume possibly have an adverse impact on the trade-environmental nexus. This argument is supported by the statistical evidence that FTAs between East Asian countries is less likely to have substantive environmental provisions than the agreements with outside countries.

The statistical analysis of environmental provisions in East Asians FTAs leads to three general conclusions.

First, knowledge is an important factor that affects the substantiveness of trade-environment linkage. In international negotiations, both parties equally possess a high level of knowledge of the bargaining issues, the outcome of issue-linkage is more likely to be substantive. Even when states maintain a different level of knowledge, knowledge can play a role as a mediating agent in trade talks, and make it possible to achieve more substantive negotiation outcome.

Second, at least in the East Asian context, states tend to see environmental consideration as an obstacle to trade. Since most of the East Asian countries still put more emphasis on economic growth through trade, they are relatively reluctant to link environmental concern to trade.

Finally, the role of knowledge highlights the significance of cognitive attributes of actors in the process of negotiation. In spite of an unignorable influence of political and economic power in the international negotiation, this study shows that non-material factors also have considerable influence on the negotiation outcome.

6.2 Limitations of Study and Suggestions for Future Study

While this study sought to answer several questions about the trade-environment linkage, it should be clear that the primary limitations of this study arise from operationalizing variables. Concerning the definition of the strength of environmental provisions, the main difficulty is rooted in the absence of a clear consensus about what the notion means and how it should be measured since there is little previous research which conducted quantitative analysis on the

environmental content of FTAs. As a result, the operationalized definition of the strength of the environment is somewhat contrived. The scope and strength of the environmental content that is appeared in FTAs are more complicated than the concept of strength of environmental provisions which are used in this study. Therefore, it is necessary to consider the specific content of each environmental clause in regional trade agreements for further research.

For the concept of environmental knowledge, there are limitations of a time difference. Since the Gallup poll that is utilized to estimate environmental knowledge level of countries was conducted in 2007 to 2008, the environmental awareness of the countries only for that period, not all the time when an FTA signed, was considered in this study. As a result, there is a time lag between when the environmental awareness was measured and when the FTAs are signed. This could be partly justified that attitude toward the environment is not changed easily in short period since it is formed over a long time by various factors, such as education, lifestyle, family, and even a political regime of the nation a person lives (Vicente-Molina, Fernández-Sáinz and Izagirre-Olaizola 2013). The time lag issue, however, remains to be considered for more accurate analysis.

Finally, the empirical analysis cannot explain the case, like Japanese FTAs or Singapore-EU FTA, where a state's knowledge level is high but do not adopt substantive environmental provisions in its RTAs. In some cases, a state may seek economic gains rather than progress toward its environmental goals. Thus, other driving factors that affect political choices, such as domestic pressure or political mandates, should be considered for further study.

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Appendix

Appendix 1 Environmental provisions in East Asian bilateral FTAs

<i>FTA</i>	<i>YEAR*</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>	<i>9</i>	<i>10</i>	<i>11</i>	<i>12</i>
Korea-Chile	2003	x	x					x	x				
Korea-EFTA	2005	x	x										
Korea-Singapore	2006		x						x	x			
Korea-ASEAN	2006		x			x		x	x				
Korea-US	2007	x	x	x		x	x	x	x	x	x	x	x
Korea-India	2010	x	x			x	x						
Korea-EU	2010	x	x	x	x	x	x	x	x	x	x	x	x
Korea-Peru	2011	x	x	x	x	x	x	x	x	x			
Korea-Turkey	2013	x	x	x	x	x	x	x	x	x			
Korea-Colombia	2013	x	x	x	x	x	x	x	x	x	x		
Korea-Australia	2014	x	x	x	x	x	x	x	x	x			
Korea-Canada	2014	x	x	x	x	x	x	x	x	x	x	x	x
Korea-China	2015	x	x	x	x	x	x	x	x	x			
Korea-New Zealand	2015	x	x	x	x	x	x	x	x	x	x	x	x
Korea-Vietnam	2015		x										
Japan-Singapore	2002												
Japan-Mexico	2004		x	x	x	x		x					
Japan-Malaysia	2005	x	x					x					
Japan-Philippines	2007	x						x					
Japan-Chile	2007		x			x							
Japan-Thailand	2007	x	x					x					
Japan-Indonesia	2007	x	x				x	x					
Japan-Brunei Darussalam	2007						x						
Japan-ASEAN	2008		x					x					
Japan-Vietnam	2008		x					x					
Japan-India	2009			x	x		x	x					
Japan-Switzerland	2009	x	x		x								
Japan-Peru	2011							x					
Japan-Australia	2014												
Japan-Mongolia	2015							x			x		
China-Thailand	2003												
China-Hong Kong	2003												
China-Macau	2003												
China-ASEAN	2004							x					
China-Chile	2005							x					
China-Pakistan	2006												
China-New Zealand	2008	x	x					x					
China-Singapore	2008		x										
China-Peru	2009	x	x					x					
China-Costa Rica	2010	x	x					x					
China-Chinese Taipei	2010												
China-Switzerland	2013	x	x	x	x	x	x	x	x	x			
China-Iceland	2014	x	x					x					
China-Australia	2015												
Hong Kong-New Zealand	2010	x	x					x					
Hong Kong-EFTA	2011	x	x	x	x	x	x	x	x	x	x		
Hong Kong-Chile	2012	x	x	x		x	x	x	x	x	x		x
Chinese Taipei-Panama	2003	x	x	x			x						
Chinese Taipei-Guatemala	2005	x	x	x		x	x						
Chinese Taipei-Nicaragua	2006		x	x	x	x	x	x	x	x	x	x	

<i>FTA</i>	<i>YEAR</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>	<i>9</i>	<i>10</i>	<i>11</i>	<i>12</i>
Chinese Taipei-El Salv/Hond**	2007	x	x	x			x						
Chinese Taipei-New Zealand	2013	x		x	x	x	x	x	x	x	x		
Chinese Taipei-Singapore	2013		x										
ASEAN-India	2009							x					
ASEAN-Aus/NZ***	2009		x					x					
Indonesia-Pakistan	2012												
Malaysia-Pakistan	2007		x										
Malaysia-New Zealand	2009	x	x					x					
Malaysia-Chile	2010	x	x			x	x	x					
Malaysia-India	2011		x										
Malaysia-Australia	2012		x										
Malaysia-Turkey	2014	x	x					x					
Singapore-New Zealand	2000	x	x										
Singapore-EFTA	2002	x											
Singapore-Australia	2003		x										
Singapore-US	2003	x	x	x		x	x	x	x	x	x		x
Singapore-Jordan	2004	x	x										
Singapore-India	2005	x	x										
Singapore-Panama	2006	x	x										
Singapore-Peru	2008	x	x										
Singapore-GCC	2008												
Singapore-Costa Rica	2010	x	x					x		x			
Singapore-EU	2014		x										
Thailand-Lao PDR****	1991												
Thailand-Australia	2004		x	x									
Thailand-New Zealand	2005	x											
Thailand-Peru	2010												
Thailand-Chile	2013		x	x			x	x					
Vietnam-Chile	2011	x	x										
Vietnam-EAEU	2015		x										

Source: Author

Notes:

1=Preamble

2=General exceptions based on GATT and GATS

3=Not relaxing the existing environmental laws to enhance trade

4=Environmental goods and services

5=Environmental consultations and information exchange

6=Enforcement of national environmental laws

7=Environmental cooperation

8=Environmental chapter

9=Specific provisions on MEAs

10=Public participation

11=Public submission

12=Dispute settlement mechanism

Shadow area=more substantive provisions

*Year of signing, **El Salv/Hond= El Salvador and Honduras, ***Aus/NZ= Australia and New Zealand,

****Lao PDR= Lao People's Democratic Republic

Appendix 2 Environmental awareness score of the countries discussed in this study

<i>State</i>	<i>Awareness</i>	<i>Regional integration</i>	<i>State</i>	<i>Awareness</i>	<i>Regional integration</i>
Japan	99		Belarus	80	EAEU
Finland	98	EU	Lao DPR	80	ASEAN
Australia	97		Armenia	78	EAEU
Norway	97	EFTA	Costa Rica	75	
UK	97	EU	Malta	75	EU
US	97		Mongolia	75	
EFTA average	96		Turkey	74	
Germany	96	EU	Chile	73	
Netherland	96	EU	Vietnam	73	ASEAN
Sweden	96	EU	EAEU average	71	
Switzerland	96	EFTA	Malaysia	71	ASEAN
Austria	95	EU	Colombia	68	
Canada	95		Mexico	67	
Iceland	95	EFTA	Panama	65	
Luxemburg	95	EU	Qatar	64	
Ireland	94	EU	ASEAN average	62.4	
EU average	93.6		China	62	
France	93	EU	Honduras	62	
Hong Kong	93		Jordan	62	
Hungary	93	EU	Peru	62	
South Korea	93		Kazakhstan	60	EAEU
Latvia	91	EU	Cambodia	58	ASEAN
Lithuania	91	EU	El Salvador	55	
Chinese Taipei	91		Nicaragua	53	
Denmark	90	EU	Kyrgyzstan	52	EAEU
Portugal	90	EU	Philippines	47	ASEAN
Belgium	89	EU	Indonesia	39	ASEAN
Estonia	88	EU	India	35	
Thailand	88	ASEAN	Pakistan	34	
Czech Republic	87	EU	Brunei Darussalam	22	ASEAN
Greece	87	EU			
Bulgaria	87	EU			
Russia	85	EAEU			
Spain	85	EU			
Italy	84	EU			
Poland	84	EU			
Singapore	84	ASEAN			
Romania	81	EU			

Source: Gallup (2009)

국문초록

동아시아 FTA 내 환경규정 형성에 영향을 미치는 요인 연구 : 지식의 역할을 중심으로

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최근의 자유무역협정(FTA)은 단순히 관세 철폐를 통해 무역으로부터의 이득을 확보하는 것 이외에 환경이나 노동과 같은 무역관련 이슈를 함께 다루는 경우가 증가하고 있다. 그 결과 환경 관련 규정을 포함하고 있는 FTA가 급속히 증가하고 있다.

본 연구는 이러한 점에 착안하여 FTA 협상에서 무역과 환경이슈의 연계를 가능하게 하는 요인을 실증연구를 통해 확인하고 있다. 기존 연구들이 GDP와 무역 규모 등 경제 변수를 중심으로 무역과 환경의 관계를 다루고 있는 것과 달리, 본 연구는 국가 간 협상이라는 상황에서 협상 당사국의 경제규모 뿐 아니라 협상 이슈에 대한 지식(knowledge) 수준과 국가 간 무역 관계가 얼마나 대칭적인가(trade asymmetry)에 따라 무역과 환경 이슈의 연계 정도가 달라짐을 실증적으로 검증하고자 하였다. 이를 위해 ASEAN 회원국 및 한국, 중국, 일본이 체결한 80개 FTA를 대상으로 분석을 실시한 결과, 협상에 참여하는 국가들이 환경 이슈에 대해 높은 지식수준을 가지고 있을수록 FTA 내 환경규정의 강

도가 높아지는 반면, 무역량의 증가는 환경규정의 강도를 약화시킨다는 사실이 통계적으로 확인되었다. 즉, 환경이슈에 대한 지식 수준이 높을 수록 무역과 환경 간에 보다 실질적인(substantive) 이슈연계가 일어나는 반면, 무역규모의 증가는 상반된 효과를 가져오는 것을 확인하였다.

이는 협상에 참여하는 국가들이 이슈에 대해 높은 지식을 보유할 수록 보다 실질적인 협력이 가능해짐을 의미한다. 또한 협상 파트너가 이슈연계에 동의하지 않을 때에도 사안에 대한 정보와 지식의 공유를 통해 이슈에 대한 상대국의 선호도와 태도에 영향을 미침으로써 협상결과의 실효성을 높일 수 있다. 이는 협상 상황에서 국가의 물리적 힘 못지 않게 지식과 같은 인지적인 요인도 협상 결과에 중요한 영향을 미칠 수 있음을 시사한다.

반면, 협상 참여국의 총 무역 규모는 FTA 내 환경규정 강도를 약화시키는 것으로 나타난 바, 동아시아 국가들의 경우 환경에 대한 고려를 여전히 무역에 대한 ‘위장된 보호(disguised protection)’로 간주하는 경향이 있음을 확인할 수 있다. 실제로 동아시아 역내 국가 간에 체결한 FTA의 환경규정 강도가 역외 국가와의 FTA보다 낮다는 사실이 이러한 주장을 뒷받침 한다.

한편, 무역 비대칭(trade asymmetry) 변수는 FTA 내 환경규정에 통계적으로 유의미한 영향을 미치지 않는 것으로 나타났다.

주요어: 무역과 환경, 자유무역협정, 이슈연계, 통상협상, 지식

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