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An Empirical Study on the Characteristic Influences of the Rules of Origin on the Implementation of Preferential Tariffs and Trade Performance

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Abstract

Purpose – This study categorizes factors that influence the utilization of preferential tariffs based on the characteristics of rules of origin (RoO) and identifies and analyzes the influence of these characteristics on the utilization of preferential tariffs and the trade performance of companies.

Design/methodology – In this study, we categorized factors that have an influence on the utilization of preferential tariffs based on the characteristics of RoO and investigated and tested the influence of these characteristics on the utilization of preferential tariffs and the trade performance of companies. For empirical analysis, we categorized the characteristics of RoO into restrictiveness, complexity, and uncertainty. We then developed a research model and formulated hypotheses based on previous studies, and tested the hypotheses using statistical software—(SPSS 25.0 and AMOS 18.0.)

Findings – Previous studies suggested that each characteristic of RoO is determined by unique features of a Regional Trade Agreement (RTA). This study conducted an empirical analysis on the influence of the characteristics of RoO on the utilization of preferential tariffs and trade performance. The results confirmed that, overall, the characteristics of preferential rules of origin (PRoO) are related to and influence Korean companies' utilization of preferential tariffs and trade performance. As for the degree of the influence, the characteristics were in the order of uncertainty> restrictiveness> complexity. Nevertheless, complexity turned out not to have an influence large enough to change a company's decision on the utilization of preferential tariffs. Based on these results, this study identified unique features of PRoO and related problems for Korean companies that want to utilize preferential tariffs and suggested countermeasures for their effective utilization of preferential tariffs in the future.

Originality/value – Companies that want to use preferential tariffs in international trade have to satisfy PRoO. The issue of origin can be regarded as an essential part of an RTA and RoO, are a crucial criterion in using preferential tariffs. The rules are requirements to claim benefits of preferential trade agreements and are the primary reasons companies have trouble in utilizing preferential tariffs. In this sense, this study categorized the characteristics of RoO, which are a key part of an RTA, and surveyed working-level professionals in charge of international trade at Korean companies to investigate the relationship between these characteristics and the utilizations of preferential tariffs and trade performance of the companies.

Keywords: Characteristics of the Rules of Origin, Free Trade Agreement, Preferential Tariffs, Trade Performance

JEL Classifications: D12, F14, O53

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1. Introduction

1.1. Purpose and Background of Research

The origin of a product should be determined to take advantage of preferential tariffs under regional trade agreements (RTAs), which have been spreading worldwide in a multiple and simultaneous way. The rules to determine the origin include preferential rules of origin (PRoO) that stipulate the procedures and rules to grant preferential tariffs. The complicated nature of rules of origin (RoO) often become a cause of conflicts in international trade. Despite the efforts to establish globally harmonized rules to solve the intertwined problems regarding RoO, no separate model has been designated so far (Kyoto Convention). Rather, countries adopt RoO more rigorously when signing FTAs to protect their industries, which could complicate the origin related procedures and incur expensive costs (Cho Sung-Jang and Cho Chan-Hyuk, 2016).

Granting preferential benefits generally means conferring preferential tariffs that are lower than base rates. The purpose is to offer benefits to parties to a trade agreement (Choi Jae-Soon, 2008); however, it is practically difficult for companies involved in international trade to enjoy such benefits. Korea has been continuously concluding an increasing the number of FTAs, and each agreement has a different RoO. Therefore, Korean companies have trouble utilizing preferential tariffs in many cases because of the characteristics of RoO. In the case of PRoO, the inherent characteristics can cause political tension and instability, although PRoO govern preferential tariffs under an FTA (Yi Ji-Soo, 2016). Not in line with the purpose of FTAs, RoO become another trade barrier, which can be an obstacle for free trade that allows companies to utilize preferential tariffs. The preferential treatment conferred under an RTA is rescinded when RoO are not satisfied. In this sense, RoO can be considered as an instrument to that provides access to markets in international trade (Estevadeordal, Harris and Suominen, 2009). This feature could restrict the utilization of preferential tariffs by making it difficult for companies to utilize the tariffs; however, many Korean companies are ill-prepared for this issue. Many studies have been conducted on the effect or the utilization of FTAs, but relatively not enough research has been conducted regarding the influence of each characteristic of RoO or countermeasures for issues related to RoO.

FTAs are not a completely new form of trade environment; however, recently, FTAs have proliferated across the world. Amid such an international trend, Korea, as a country that has signed and utilized numerous FTAs, needs more studies about the relationship between the utilization of FTAs and RoO and the relationship between trade performance and preparedness for the characteristics of RoO. In this sense, we surveyed Korean companies that utilize FTAs. We categorized the RoO characteristics that influence the utilization of preferential tariffs and set them as variables, then analyzed their relationship with the utilization of preferential tariffs and the variables' influence on trade performance. Based on the results, we investigated the features of the RoO characteristics and the countermeasures for the characteristics and made recommendations so that Korean companies can prepare themselves to utilize preferential tariffs.

1.2. Scope and Method of Research

To achieve the purpose of this study, we constructed hypotheses based on a literature review and earlier studies and drew conclusions through an empirical analysis. Based on

earlier studies, we analyzed the characteristics of FTA PRoO by type and reviewed and analyzed existing trade agreements and cases related to origin. With the results from the review, we developed a research model, formulated hypotheses, and tested them using statistical methods—SPSS 25.0 and AMOS 18.0.

This study comprises five chapters. Following this introductory chapter, in chapter 2, we examined general criteria of RoO under FTA, reviewed related theories, and analyzed previous studies. In chapter 3, we constructed hypotheses and deduced research variables based on the relationships between the characteristics of RoO and Korean companies' utilization of preferential tariffs. In chapter 4, we drew conclusions from the empirical analysis and tested and interpreted the conclusion. In chapter 5, we finished the study with summaries and explained the limitations of this study.

2. Theoretical Background

2.1. Rules of Origin of the FTA

A variety of issues exist in FTAs among different countries, especially RoO, which have the largest influence on the trade of goods. In this context, numerous studies have been conducted on the utilization and influence of FTAs, preferential tariffs, and RoO.

As for studies by Korean scholars, Choi Jangwoo (2007) compared PRoO and the related system between Korea and the countries with which Korea signed FTAs. Park Myungseob (2014) conducted a comprehensive analysis of the relative consistency of origin criteria under major FTAs and the consistency of origin criteria for different industries. Lee Yonggeun and Ahan Changdal (2011) analyzed the influence of an index that measures the strictness of RoO under FTAs that Korea signed on trade volume, with a focus on the major trading goods of the country. As the number of FTAs grew, Cho, Mee-Jin, and Kyoung-Ae An (2011) analyzed the importance and characteristics of RoO, which is the key factor for the implementation of FTAs. Yi Ji-Soo (2016) pointed out that not much research has been done regarding potential disputes related to PRoO and dispute resolution, claiming that the inherent characteristics of PRoO can cause instability although PRoO governs preferential tariffs.

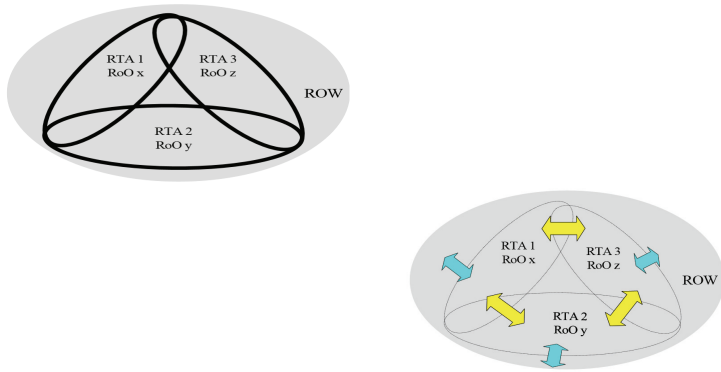
As for the studies conducted by foreign scholars, Estevadeordal, Harris, and Suominen (2009) asserted that dissatisfaction with the RoO can lead to disqualification for preferential treatment; thus, RoO can be viewed as means to gain access to markets in international trade. They categorized the characteristics of RoO and suggested that such characteristics are determined by unique components of RTAs. Harris (2007) suggested the measurement and measurement methodology of RoO in a preferential trade agreement and suggested the mechanism for the determinants of RoO. Krishna and Krueger (1995), in their study that focused on the influence of RoO in free trade areas, proved that RoO influenced investment and trade flows. RoO determine the utilization of preferential and non-preferential benefits based on the country of origin. These RoO exist in the format of a written agreements between contracting parties, international conventions, or regulations and comprise the certification and verification procedures of the customs authority. Korea enforced the *Special Law on Customs Act for the implementation of the Free Trade Agreement* as the country concluded an increasing number of FTAs.

The Paris Convention for the Protection of Industrial Property (1883) is the first RoO international law. Ever since the establishment of this law, RoO have been legalized in the US,

Europe, and other regions. GATT(General Agreement on Tariffs and Trade) specifies rules on marks of origin (1947) and the Kyoto Convention (1973) provided general rules and criteria of origin mark in the Annex (D.1, D.2, and D.3). Later, WTO(World Trade Organization-1994) stipulated the Agreement on Rules of Origin and called for the establishment of harmonized RoO; however, setting up common international rules is not a simple thing to do. For this reason, FTAs have proliferated between two parties or among multiple parties. In FTAs, RoO refer to overall rules including general rules, product-specific rules, and others. The origin of a product is its nationality and is generally based on the place where the product is manufactured, produced, and processed.

Origin criteria have grown increasingly complicated and difficult because of international trade and the globalization of manufacturing processes. Moreover, every country is under different circumstances because of the ban on imports through circumvention of origin rules, efforts to protect domestic industries and trade policies. Therefore, in reality, it is very difficult to standardize RoO. Consequently, it is natural that the influence of RoO and their characteristics become greater as FTAs proliferate. Manchin and Pelkmans-Balaoing (2007) pointed out that PRoO can cause a trade-chilling effect based on their analysis of PRoO in the East Asian region. Harris and Staples (2009) suggested a few mechanisms that can lower the barrier created by RoO through effective trade facilitation. A study on how the degree of restrictiveness of RoO builds up trade barriers found that the problem of divergence occurs because RoO make such barriers.

Table 1. Divergence with Restrictiveness / Low Restrictiveness



Note: Rest of the World (ROW).
Source: Estevadeordal, Harris and Suominen (2009).

2.2. Requirements for the Application of Preferential Tariffs

In international trade, RoO can be classified into PRoO, which confer preferential tariffs, and non-PRoO, which are made for purposes other than conferring preferential tariffs, depending on the purpose and the method of application. PRoO comprises the origin criteria for origin determination, criteria for origin marks, and rules on origin certificate submission and verification procedure of the customs. Each preferential trade agreement has different

PRoO; however, they all share a similar basic frame—the process for application of an FTA scheme should be followed, and basic prerequisites such as the originating product rule, the direct consignment rule, the item rule, the transaction, the procedure rule, and the origin certification rule should be met.

To claim preferential tariffs under an FTA, as mentioned above, a product should meet all general criteria agreed between the contracting parties. Then the wholly obtained criterion or the entirely produced and substantial transformation criterion is applied to determine the origin. The wholly obtained criterion is applied to primary products such as agricultural, fisheries, livestock, and mining products while the substantial transformation criterion is applied to most manufactured goods. When all of the criteria for the application of the FTA scheme are met, its origin should be certified according to the methods and procedures specified in the agreement using documentary evidence for the originating product. Moreover, the exporter should be able to explain that the product has met all the criteria for the preferential tariffs applied to the product during the verification process.

3. Hypothesis Development

3.1. Analysis of the Characteristics and Types of Rules of Origin and Determination of Variables

3.1.1. Determination of the Variables: Implementation of Preferential Tariffs & Trade Performance

RoO are classified into non-PRoO and PRoO. This study covers FTA PRoO, which are the criteria for the application of preferential tariffs. Every preferential trade arrangement includes RoO as an essential part of the agreement. This study aims to categorize inherent characteristics of RoO by type and investigate the influence of these characteristics on the utilization of preferential tariffs and the trade performance of companies.

There are many factors that affect the use of FTA, Among them, the country of origin is an important factor affecting the application of FTA and the post-verification process. Therefore, the characteristics of the rules of origin were classified into categories of restrictiveness, complexity, and uncertainty, and selected as variables.

Youn Young-ho and Na Do-sung (2013) analyzed the relationship between FTA utilization and export performance and suggested support policies to increase FTA utilization. Cho Mee-jin and Choi Bo-young (2019) investigated whether the rules of origin had an effect on the actual use of FTA through empirical analysis. It was confirmed that the effect of tariff abolition and reduction through FTA had a positive effect on improving FTA performance. Yi Ji-soo (2015) stated that the use of FTA is negatively affected by the uncertainty of the post-origin verification, and if the uncertainty is high, the company's FTA preferential tax rate is applied conservatively.

Koh Yong-ki, Park Da-som and Nam Yun-mi (2019) analyzed the effect on the performance of Korean export-manufacturing firms, focusing on the origin management factor and it was derived that the understanding of the rules of origin and management capabilities affects the performance. Bang Sung-chul and Yu Kwang-hyun (2020) presented risks and management measures that may arise from violations of rules of origin in a study on the systematic management of importer risks in the rules of origin verification system.

3.1.2. Determination of Variables: Restrictiveness

In a preferential trade agreement, RoO are the key part of the agreement as well as crucial rules. Yi Ji-Soo (2016) pointed out that the complicated rules and their inherent ambiguity about the responsibility for risks can cause disputes and categorized the characteristics of RoO. The first characteristic of RoO is restrictiveness, which means the origin criteria are restrictive and strict. Ju and Krishna (1998) offered the criticism that the trade creation effect of free trade can be hindered by inefficient RoO that require inputs from a certain region to be used in manufactured products of a company. In particular, FTAs, are not free from RoO and can exclude non-FTA members from a market. Krishna and Krueger (1995) analyzed the influence of a variety of RoO in free trade areas and found that even non-restrictive RoO can influence the trade flow. They pointed out that more imperfect competition can make RoO more restrictive and stricter. Estevadeordal, Harris, and Suominen (2009) analyzed the restrictiveness and divergence of RoO around the world and proposed measures to reduce the restrictiveness and divergence through convergence and an array of policies.

Restrictive RoO can create excessive barriers for trade between a country that is a party to a preferential trade arrangement and a non-party country. Estevadeordal (2000) put forth a method to create indices for the restrictive and strict characteristics of RoO based on NAFTA(USMCA).

Hur Yun-seok, Pak Myung-sop and Park Jin-woo (2017) suggested that the strictness of the rules of origin is a factor that hinders the use of FTA and analyzed the stringency index focusing on fishery products to suggest implications. Son Yong-jung (2017) analyzed the degree of influence of the strictness of the FTA rules of origin on exports and imports. Kwon Mi-ok and Ra Hee-ryang (2016) analyzed and derived the strictness of Korea's FTA origin determination criteria focusing on the characteristics of each industry. Park Hyeon-jung and Lim Jae-wook (2020) analyzed the effect of rules of origin and strictness on raw material procurement cost and trade in FTA and confirmed that strict rules of origin affect trade. Kang Moon-sung (2015) analyzed the characteristics and stringency index of rules of origin focusing on the Korea-China FTA and confirmed that the stringency index was relatively lower than that of other agreements. Additionally, the types of relationships there are to trade relations with China of different rules of origin for each industry is presented.

3.1.3. Determination of Variables: Complexity

The second characteristic of RoO is complexity. It means that origin criteria, which are the criteria for the application of preferential tariffs, and the procedures for origin certification and verification are complicated and that each party to a preferential trade arrangement has different RoO. Nam Phung-Woo and Choi Jun-Ho (2007) commented that the lack of understanding of the criteria and procedures to claim benefits of FTAs can inflict losses because the criteria and procedures are complicated and very strict. Kim Moo-Han (2010) criticized that the FTA utilization rate of Korean small and medium enterprises is low because of their lack of awareness regarding the utilization of FTA and complex RoO and suggested strategies to solve this problem.

Estevadeordal, Harris, and Suominen (2009) said that the RoO of many trade agreement parties overlap with each other, and such overlap could increase the transaction cost of a company. They also claimed that the complex nature of RoO is related to the restrictiveness. They suggested that attention needs to be paid to the complexity of RoO, which can be

considered as sectoral selectivity because it can make it harder for a company to manage the rules of many different trade agreements. The degree of complexity of origin rules and systems can vary depending on the trade type among parties to a preferential trade arrangement or the degree of complexity of the trade pattern.

Cho Mee-jin and Ahn Kyung-ae (2011) compared Korea's FTA rules of origin and presented an analysis and countermeasures on the status of FTA utilization by domestic companies. In addition the complexity of the rules of origin can place a great burden on companies that have to comply with them, so it is necessary to understand the rules of origin. Cho Mee-jin (2020) stated that research methods may differ depending on the approach to the role of trade barriers in complex rules of origin. In addition based on the analysis of the utilization rate of preferential tariffs with a focus on the KOR-US FTA, an estimate of the compliance costs caused by the rules of origin was presented.

3.1.4. Determination of Variables: Uncertainty

The third characteristic of RoO is uncertainty, which can be caused by interpretive disagreement among trade agreement parties in several aspects such as the application of origin rules and preferential tariffs or the procedure and method of origin verification. The divergence mentioned in previous studies can cause uncertainty about matters such as incurred costs because producers in different sectors of the cumulation rule are under different circumstances and have varying requirements when the cumulation rule is applied. In a broader sense, the uncertainty could include factors such as elements over which a company cannot have control or an unpredictable environment in international trade. Robbins (1984) mentioned that one of the factors that companies cannot control is an external environment. In the FTA environment, rules such as RoO and written agreements can be considered as an external environment that can have an influence. Krueger (1999) paid attention to functions of RoO barriers that can cause a trade diversion effect and presented a case in which an industry is protected by using intermediate material to meet the RoO under NAFTA(USMCA).

Meanwhile, Zou and Stan (1998) identified factors over which companies can have internal control such as resources and capital, knowledge, and trading experiences; these are important factors for the performance of a company. Kaleka (2002) classified the resources of a company into financial resources, physical resources, company size, and trade experience. The trade experience would include experiences where the company learned how to respond to problems under an FTA. Cho Yeonsung and Park Keunho (2010) considered external uncertainty as a factor that influences the performance of a company. They analyzed the factors and investigated their influence on the performance of the company. Many studies that Korea has concluded on FTA often criticize that the origin criteria under those FTAs are more complicated than the criteria applied to other countries; and that the cost to meet such criteria would place a burden on Korean companies (Jeong Inkyo, 2009).

Woo Han-sung, Hwang Seok-joon and Hwang Uk (2018) analyzed a mathematical model for the optimal schedule of rule of origin verification to confirm the violation of the rules of origin. Furthermore, it was suggested that the frequency of rule of origin verification should increase as the stability of the rule of origin verification system weakens.

Cho Mee-jin, Lee Byung-mun and Song Kyoung-eun (2015) reported that concerns about the effects of trade barriers are growing as the consistency of rules of origin for each FTA is lacking. In addition, the cost of managing the country of origin due to the use of FTA by

domestic companies was analyzed and presented.

The meaning of uncertainty can vary; in this study, based on previous studies about RoO and the FTA environment where Korea is a member, we included having different RoO in different agreements, the interpretive and procedural difference among such RoO, and the issues that can arise from origin verification in the concept of uncertainty to conduct the research.

3.2. Determination of Hypothesis

H_1: The restrictiveness of RoO would not influence the utilization of preferential tariffs.

We aim to investigate if the restrictiveness of RoO influences the utilization of preferential tariffs. Yi Ji-Soo (2016) claimed that abstruse rules about the country of origin and restrictive and complicated procedures place a heavy burden on companies while the customs authority can rescind the preferential tariff benefit. The problem that was pointed out in many previous studies is that RoO can be applied in a very restrictive and strict manner as a tacit instrument of FTAs. Kim, Han-Sung, Mee-Jin Cho, Jae-Wan Cheong, and Min-sung Kim (2008) analyzed the correlation between the restrictiveness of PRoO and the utilization rate of PRoO. Isono (2008) proved that the low FTA utilization rate of small and medium enterprises is because of the lack of information, restrictive and complicated RoO, and the increase in the fixed cost due to the RoO. Lee Yonggeun and Ahn Changdal (2011) quantitatively measured the strict and restrictive characteristics of RoO under the FTAs that Korea signed and analyzed the influence of the characteristic on the trade volume using measured indices. Based on previous studies, this study viewed the restrictive characteristic, which forces companies to use inputs from a restricted area to a certain degree to utilize preferential tariffs and meet PRoO under an FTA, as a factor that can have a negative impact on the utilization of preferential tariffs and formulated a hypothesis.

H_2: The complexity of RoO would not influence the utilization of preferential tariffs.

This study aims to investigate if the complexity of RoO influences the utilization of preferential tariffs. Each party to a trade agreement often has a different type of RoO due to the complex nature of the rules; therefore, RoO can function as a trade barrier. Bhagwati, Greenaway, and Panagariya (1998) explained the complex and restrictive characteristics of RoO and the problems caused because of the spaghetti bowl effect and criticized the ineffectiveness of multiple simultaneous preferential trade agreements. Estevadeordal, Harris, and Suominen (2009) studied the cost-incurring aspect of RoO, which is caused by uncertainty and complexity of the rules. This aspect makes it difficult and restrictive to apply preferential tariffs in a preferential trade arrangement. They also investigated the influence of such characteristics on exporters, producers, and importers. From the perspective of companies that utilize preferential tariffs under a trade agreement such as FTA, each trade partner country has different RoO, and this makes it difficult for the companies to prepare for origin certification. In this context, this study developed this hypothesis to investigate how much influence the complexity of RoO has on the utilization of preferential tariffs in the practical term.

H_3: The uncertainty of RoO would not influence the utilization of preferential tariffs.

This study aims to investigate if the uncertainty of RoO influences the utilization of preferential tariffs. The uncertainties that can be created during the utilization of preferential tariffs include differences in the procedure and method of origin certification and verification and the differences in interpretation of RoO among parties to a trade agreement. Estevadeordal, Harris, and Suominen (2009) suggested that the characteristics of RoO increase the cost and uncertainty for both the public and private sectors. Izam (2003) claimed that the verification procedure of RoO can create substantial problems in terms of dispute resolution. Cantin and Lowenfeld (1993) mentioned that exporting and importing countries might have differences in their understanding and interpretation of RoO.

The Commission of the European Communities (2003) claimed that the fundamental characteristics of origin verification that are related to different laws and cultures of parties to an agreement leave ample room for disputes when applying RoO. They also supposed that direct verification incurs substantial costs on the customs authority, while indirect verification cannot guarantee the effect of the verification if the customs authorities of member countries do not cooperate. The characteristics of RoO could increase the uncertainty about the responsibilities of a company for RoO, which could lead to disputes as well as reduce the company's utilization of preferential tariffs. In this context, this study formulated a hypothesis to investigate the influence of the uncertainty of RoO on companies' utilization of preferential tariffs.

H_4: Successful utilization of preferential tariffs may not influence the trade performance of import and export companies.

Several factors could influence companies in international trade. Among many factors, implementing FTAs that are spreading among many countries and the application of preferential tariffs have a huge impact on companies and countries. The study conducted by Cho Jeongran (2008), which investigated the influence of RoO on the economic effect of FTAs estimated the relationship between RoO and FTAs with NAFTA (USMCA) and analyzed issues regarding the origin criteria in the Korea-US FTA. Yi (2016) expanded the research theory about the complexity and restrictiveness of laws and regulations in international trade to formulate measures to improve PRoO and provided policy recommendations for improvement and theoretical implications. Na Do-Sung and Young-Ho Yoon (2011) studied the efforts of Korean companies to enhance their competence for FTAs and analyzed the factors that influence the export performance in the FTA environment. Cho, Sung-Jang, and Chan Hyouk Cho (2016) investigated the factors that influence the establishment of RoO under FTAs for each industry with a focus on the main industries of Korea. Cho, Mee-Jin and Kyong-Ae An (2011), in their study about the utilization and implementation of FTAs of major regions such as the US, Europe, and ASEAN(Association of South-East Asian Nations), explained that the degree of benefit from preferential tariffs, the method and procedure of origin verification, and the characteristics of RoO influence the utilization and implementation of FTAs.

Based on many previous studies, this study developed a hypothesis centered on the relationship between the characteristics of PRoO and the utilization of preferential tariffs to investigate how the utilization of preferential tariffs influence the trade performance of import and export companies.

H_5: The degree of influence that each characteristic of RoO has on the utilization of FTA preferential tariffs may be the same for restrictiveness, complexity, and uncertainty.

In this study, we categorized and explored the characteristics of PRoO by type and formulated a hypothesis to assess if these characteristics have a different degree of influence on the utilization of preferential tariffs in the FTA environment.

Based on the previous studies mentioned above, we categorized the characteristics of RoO—the measured items—by type to define the variables. Then we built a research model and hypotheses centering on the variables created based on the previous studies and prepared questionnaires through the operational definition of variables.

3.3. Composition of Survey Questions

We conducted a survey for the empirical analysis in this study from December 2019 to April 2020. The target of the survey was domestic import and export companies, their working-level professionals, and experts who provide consultation service about FTAs. More specifically, the respondents of the survey were professionals from import and export companies, who attended training for the utilization of RoO and related skills. Concerning the survey method, questionnaires were collected directly in person and indirectly through emails. During the initial survey, we identified the difficulties that respondents had in understanding questions and terminologies and revised the questionnaire for the final survey to improve the respondents' understanding of the question and obtain more meaningful results. The surveys were conducted in the second half of 2019 and the first half of 2020. A total of 203 responses, which account for 41% of all targets surveyed, were collected and used in this study.

Table 2. Operant Definition and Survey

Variable	Criteria	Operant Definition and Survey
Restrictiveness of RoO	5-point Likert scale	- The influence of restrictiveness on the utilization of FTAs - The influence of restrictiveness on the utilization of preferential tariffs and satisfaction of the origin criteria under an FTA - The strictness of RoO as an instrument to facilitate protective trade - The influence of the use of intermediate inputs on the restrictiveness - The influence of the restrictiveness of RoO on the successful utilization of FTA preferential tariffs
Complexity of RoO	5-point Likert scale	- The influence of complexity on the utilization of FTAs - The influence of the complexity of RoO on the utilization of preferential tariffs and satisfaction of the origin criteria under an FTA - The degree of complexity of RoO between parties to a trade agreement - The relationship between the complexity of RoO and cost incurrence and the influence of the complexity of RoO on cost incurrence - The degree of the burden of preparing documents to meet complicated RoO - The influence of complexity of RoO on the successful utilization of FTA preferential tariffs

Table 2. (Continued)

Variable	Criteria	Operant Definition and Survey
Uncertainty of RoO	5-point Likert scale	- The influence of uncertainty on the utilization of FTAs - The influence of the uncertainty of RoO on the utilization of preferential tariffs and satisfaction of the origin criteria under an FTA - The influence of the uncertainty of RoO on the cost incurrence in the public and private sectors and on the increase in uncertainty - The influence of RoO on the origin verification procedure - The balance of rights and duties among exporters, producers, and importers - The limitation on the verification cost, inefficient verification, and parties responsible for the verification - The influence of the uncertainty of RoO on the successful utilization of FTA preference tariffs
RoO and the successful utilization of preferential tariffs under an FTA	5-point Likert scale	- The influence of the characteristics of RoO on the application of preferential tariffs - The influence of the restrictiveness, complexity, and uncertainty of RoO on the utilization of preferential tariffs and satisfaction of the origin criteria - The degree of the negative influence of the characteristics of RoO
Trade performance of Korean companies involved in import and export	5-point Likert scale	- The trade performance depending on the increased import and export volume of a company - Cost reduction due to the utilization of FTAs - The degree of the influence of the characteristics of RoO on the trade performance - Growth in trade with new partners due to enhanced price competitiveness - Import and export performance depending on the application of preferential tariffs and RoO

4. Research Design and Methodology

Based on the collected questionnaires, we reviewed the companies for which the respondents work in terms of the business type, trade items, the number of employees, revenue, the utilization of FTA, the proportion of import and export to total business, and the proportion of the business conducted utilizing FTA. Concerning business types, 18.7% of the respondent companies were in distribution and trade, 66.4% were in manufacturing and trade, and 14.9% were in others. Regarding the utilization of FTA, 86% of the respondents were utilizing them, while the rest were either preparing themselves to utilize FTA or were not utilizing FTA at all. For this study, we chose the method of directly surveying companies that use FTAs. The reason for selecting the survey method is that it is difficult to obtain data from companies related to the use of rules of origin. Therefore, after training on the practice of country of origin for the working-level managers of actual companies participating in FTA country of origin utilization and practical training, the purpose of this study is to increase their understanding and to increase the credibility of the research based on the understanding of the survey of this study. Therefore, rather than focusing on specific industries and industries, the analysis was conducted from the overall aspect of companies using FTAs.

Table 3. Sample Demographics

Variable	Classification	Total	
		N	%
Firm type	Manufacturing and trade	135	66.4
	distribution and trade	38	18.7
	Others	30	14.9
Firm Sectors	Electrical and Electronic	40	19.8
	Machinery and Parts	37	18.3
	Automotive Parts	25	12.3
	Process Food	22	10.9
	Petrochemical	18	8.9
	Steel and Metal	17	8.4
	Textile	16	7.9
	Others	28	13.5
Number of employees	Less than 50	88	43.3
	From 50-100	33	16.3
	From 100-300	41	20.2
	300 or more	41	20.2
	Total	203	100.0

4.1. Research Model

We categorized the characteristics of RoO, a key part of implementing preferential trade agreements and the use of preferential tariffs and set the characteristics as independent variables. The primary focus of this study is a causal relationship analysis about the influence of the characteristics of RoO on the utilization of preferential tariffs and trade performance. As shown in previous studies, the characteristics of PRoO can have a significant influence on exporters, importers, and producers. In this context, we categorized the characteristics of RoO into factors by type and conducted research using the model below.

4.2. Evaluation of Research Model

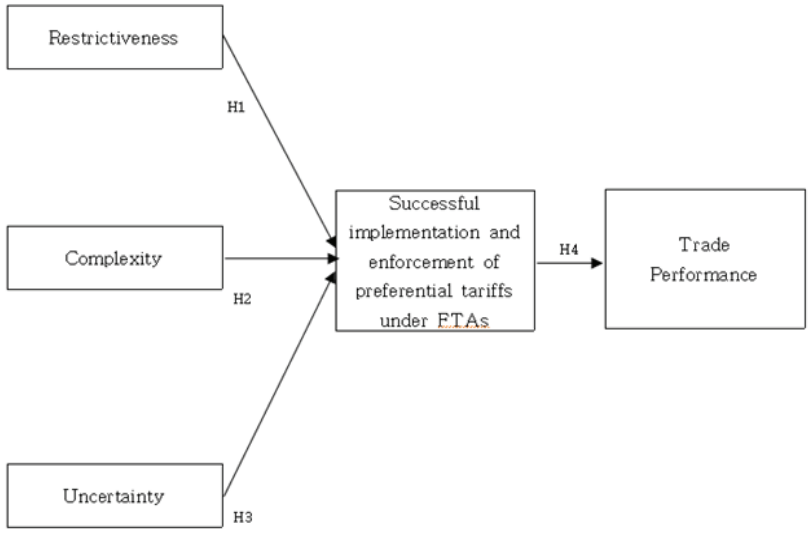
4.2.1. Reliability Analysis

We analyzed the reliability of the data collected from the survey based on internal consistency using a reliability correlation coefficient Cronbach's α. To test the reliability of the survey, we used Cronbach's α—a coefficient that measures internal consistency. Cronbach's α values were computed concerning the variable measurement category for the reliability test. The Cronbach's α values for the variable measurement categories ranged from 0.796 to 0.931. The internal consistency of all factors was high, and reliability was attained.

Table 4. Reliability Analysis

Variable	Number of questions	Cronbach's α
Restrictiveness of the RoO	10	0.866
Complexity of the RoO	11	0.899
Uncertainty of RoO	13	0.931
Implementation of Preferential Tariffs	8	0.796
Trade Performance	11	0.878

Fig. 1. Research Model



4.2.2. Exploratory Factor Analysis

We extracted communality values, which show how each variable is explained by the factors, and conducted an exploratory factor analysis to test if abstract concepts are measured adequately by actual measures. We considered a communality value greater than 0.5 as having no problem. The extracted value was greater than 0.5 as shown below; therefore, we continued the analysis.

Table 5. Exploratory factor analysis

<Restrictiveness>

KMO(Kaiser-Meyer-Olkin) and Bartlett's Test	Kaiser-Meyer-Olkin Measure of Sampling Adequacy	.878
Bartlett's sphericity test	Approximate chi square	822.509
	Degree of freedom	45
	Significance probability	.000

<Complexity>

KMO and Bartlett's Test	Kaiser-Meyer-Olkin Measure of Sampling Adequacy	.917
Bartlett's sphericity test	Approximate chi square	1140.123
	Degree of freedom	55
	Significance probability	.000

<Uncertainty>

KMO and Bartlett's Test	Kaiser-Meyer-Olkin Measure of Sampling Adequacy	.912
Bartlett's sphericity test	Approximate chi square	1647.082
	Degree of freedom	78
	Significance probability	.000

<Implementation of Preferential Tariffs>

KMO and Bartlett's Test	Kaiser-Meyer-Olkin Measure of Sampling Adequacy	.820
Bartlett's sphericity test	Approximate chi square	539.639
	Degree of freedom	28
	Significance probability	.000

<Trade Performance>

KMO and Bartlett's Test	Kaiser-Meyer-Olkin Measure of Sampling Adequacy	.827
Bartlett's sphericity test	Approximate chi square	1364.730
	Degree of freedom	55
	Significance probability	.000

The exploratory factor analysis; determined that the significance probabilities for the items in Table 5 were all less than 0.05.

4.2.3. Relevance of Multiple Regression Analysis

To measure the degree of correlation between the characteristics of RoO and FTAs, we created a group of variables based on the result of the exploratory factor analysis. The model summary shows that R^2, with independent variables of restrictiveness, complexity, uncertainty, and the utilization of preferential tariffs, was 0.453. This explains the trade performance of the company, which is a dependent variable. R^2adj,—which is $R^{2\text{-}}$ adjusted by the degree of freedom, was 0.430. This verifies the explanatory power. From the analysis of variance (ANOVA) for R^2 value, F value was 20.085, and the significance probability was 0.000; thus both values were accepted.

The maximum value of the condition index for collinearity diagnostics to test the correlation among the variables was 3.401, which was less than 15 and was therefore considered to not indicate any problems.

In the confirmatory factor analysis for structural equations, there was a phenomenon in which sub-question items of variables were tied together. To supplement this, a collinearity analysis was performed, and it was confirmed that the study was appropriate.

Table 6. Model summary and ANOVA

Model Summaryb

Model	R	R square	Adjusted R square	Standard error of the estimated value
1	.673a	.453	.430	5.09152

a. Predictors: (Constant), im_enFTA_2, Restrictiveness_1, Complexity_2, Uncertainty_2, Restrictiveness_2, Complexity_1, im_enFTA_1, Uncertainty_1

b. Dependent variable: Trade Performance sum

ANOVAa

model		Sum of squares	Degree of freedom	Mean square	F	Significance probability
1	regression	4165.477	8	520.685	20.085	.000b
	residual	5029.173	194	25.924		
	total	9194.650	202			

a. Dependent variable: Trade Performance

b. Predictors: (Constant), im_enFTA_2, Restrictiveness_1, Complexity_2, Uncertainty_2, Restrictiveness_2, Complexity_1, im_enFTA_1, Uncertainty_1

Table 7. Collinearity

Coefficient a

model		Non-standardized coefficient		Standardized coefficient	t	Significance Probability	95.0% confidence interval for b		Collinearity statistics	
		B	Standardized error	beta			Minimum	maximum	tolerance	VIF
1	(constant)	5.633	2.784		2.023	.044	.142	11.125		
	Restrictiveness_1	.373	.114	.269	3.259	.001	.147	.598	.414	2.413
	Restrictiveness_2	.041	.259	.012	.159	.874	-.470	.552	.462	2.164
	Complexity_1	-.049	.090	-.047	-.540	.590	-.226	.129	.376	2.661
	Complexity_2	-.130	.470	-.019	-.276	.783	-1.058	.798	.617	1.621
	Uncertainty_1	.055	.117	.046	.469	.640	-.176	.286	.294	3.401
	Uncertainty_2	-.031	.215	-.012	-.142	.887	-.455	.394	.366	2.732
	im_enFTA_1	.387	.197	.190	1.967	.051	-.001	.774	.303	3.298
	im_enFTA_2	1.361	.244	.415	5.569	.000	.879	1.843	.509	1.966

a. Dependent variables: Trade Performance sum

4.2.4. Path Analysis

The results of the path analysis for the research model about the factors that influence the trade performance of a company are as follows. The standardized path analysis found a direct effect of the factors on FTA: restrictiveness (0.179/0.014), uncertainty (0.360/< 0.001), and complexity (0.223/0.005). The effect of FTAs on the trade performance of a company was (0.491/<0.001).

Table 8. Standardized Regression Weight- (Group number 1 -Default model)

			Estimate	S.E.	C.R.	P
FACFTA	←	FAC Restrictiveness	.179	.073	2.461	.014
FACFTA	←	FAC Uncertainty	.360	.071	5.074	***
FACFTA	←	FAC Complexity	.223	.080	2.795	.005
FAC TradePerformance	←	FACFTA	.491	.061	8.010	***

Of the standardized total effects, the effects of the factors on the trade performance were 0.109 for complexity, 0.177 for uncertainty, and 0.088 for restrictiveness. The effect of FTAs on the trade performance was 0.491.

Table 9. Standardized Total Effects (Group number 1 -Default model)

	FAC Complexity	FAC Uncertainty	FAC Restrictiveness	FACFTA
FACFTA	.223	.360	.179	.000
FAC TradePerformance	.109	.177	.088	.491

As for the standardized indirect effects, the effects on the trade performance were 0.109 for complexity, 0.177 for uncertainty, and 0.088 for restrictiveness. The result of the bootstrap significance test showed that the effects of the factors on the trade performance were 0.010 for complexity, 0.001 for uncertainty, and 0.028 for restrictiveness, all of which satisfied the significance level.

Table 10. Standardized Indirect Effects (Group number 1 -Default model)

	FAC Complexity	FAC Uncertainty	FAC Restrictiveness	FACFTA
FACFTA	.000	.000	.000	.000
FAC TradePerformance	.109	.177	.088	.000

Standardized Indirect Effects - Two Tailed Significance (PC) (Group number 1 - Default model)

	FAC Complexity	FAC Uncertainty	FAC Restrictiveness	FACFTA
FACFTA	...	...	...	...
FAC TradePerformance	.010	.001	.028	...

4.3. Verification of the Suitability of the Research Model

This study utilized a structural equation model to test the causal relationship between independent variables and dependent variables and to analyze the goodness-of-fit model. Further, 203 effective samples were used to test the model and hypotheses and the analysis was conducted using SPSS 25.0 and AMOS 18.0. The goodness-of-fit model was tested by measuring CMIN/DF, GFI, AGFI, NFI, IFI, and CFI. The results of the evaluation were as follows: CMIN/DF was 3.379, GFI was 0.911, AGFI was 0.816, NFI was 0.902, IFI was 0.929, and CFI was 0.927 as presented in Table 11.

Table 11. Goodness-of -fit Indices of Research Model

CMIN/DF	GFI	AGFI	NFI	IFI	CFI
3.379	.911	.816	.902	.929	.927

This research model was considered to be adequate for testing the hypotheses because it indicated a value greater than 0.9, an acceptable value. The model also satisfied most of the goodness-of-fit model criteria and minimum fit levels; thus, it did not seem to yield issues when being used for this study.

5. Results

5.1. Results of Verification and Analysis of Hypotheses (Results of Hypothesis Tests and Analyses)

5.1.1. Verification of Hypotheses (Hypothesis Tests)

We tested the hypotheses about independent variables that impact the utilization of FTA and the utilization of preferential tariffs. Among the characteristics of RoO, restrictiveness (0.619/0.001) and uncertainty (0.760/<0.001) influenced the utilization of preferential tariffs, while complexity (0.037/0.940) did not. Further, the successful utilization of preferential tariffs influences the trade performance of a company.

From the tests—H_1, H_3, and H_4—hypotheses about the characteristics of RoO were rejected, and H_2 was accepted. As for H_1, the hypothesis about restrictiveness was rejected because the non-standardized estimate was 0.619 at the significance level (P) 0.001. H_3, the hypothesis about uncertainty, was also rejected with a non-standardized estimate of 0.760 at the significance level (P) < 0.001. H_2, the hypothesis about complexity, was accepted with a non-standardized estimate of 0.037 at the significant level (P) 0.940. H_4, the hypothesis about the relationship between the successful utilization of preferential tariffs and the trade performance, was rejected with a non-standardized estimate of 0.628 at the significance level (P) < 0.001.

As for H_4, the hypothesis about the degree of the influence of the characteristics of RoO on the utilization of FTA preferential tariffs, the standardized estimate was 0.627 for uncertainty, 0.310 for restrictiveness, and 0.005 for complexity, although complexity did not have a statistically significant influence. Regarding H_5, the survey on the perception of the influence of the characteristics of PRoO on the utilization and enforcement of preferential tariffs revealed that the mean of the perception was 3.72±0.91 for uncertainty, 3.70±0.93 for complexity, and 3.61±0.95 for restrictiveness.

Table 12. Regression Weights: (Group number 1- Default model)

			Non-standardized Estimate	S.E.	C.R.	P	Standardized Estimate
impleenforceFTAs	←	Restrictiveness	.619	.193	3.209	.001	.310
impleenforceFTAs	←	Complexity	.037	.489	.075	.940	.005
impleenforceFTAs	←	Uncertainty	.760	.119	6.405	***	.627
Tradeperformance	←	impleenforceFTAs	.628	.121	5.176	***	.943
Restrict_2	←	Restrictiveness	1.000				.689
Restrict_1	←	Restrictiveness	3.066	.304	10.100	***	.880
comple_2	←	Complexity	1.000				.387
comple_1	←	Complexity	9.150	1.498	6.107	***	.582
uncert_2	←	Uncertainty	1.000				.848
uncert_1	←	Uncertainty	2.165	.156	13.896	***	.887
imFTA_1	←	impleenforceFTAs	1.000				.856
imFTA_2	←	impleenforceFTAs	.293	.052	5.643	***	.408
Tradeperformance_1	←	Tradeperformance	1.000				.398
Tradeperformance_2	←	Tradeperformance	.505	.130	3.878	***	.386
Tradeperformance_3	←	Tradeperformance	.625	.121	5.150	***	.786

Table 13. The degree of influence that the characteristics of RoO have on the utilization of FTA preferential tariffs

Items	N	R	Min	Max	M	SD
Of the characteristics of PRoO, the characteristic that has the most influence on the utilization of preferential tariffs is restrictiveness.	203	4	1	5	3.61	0.956
Of the characteristics of PRoO, the characteristic that has the most influence on the utilization of preferential tariffs is complexity.	203	4	1	5	3.70	0.934
Of the characteristics of PRoO, the characteristic that has the most influence on the utilization of preferential tariffs is uncertainty.	203	4	1	5	3.72	0.915

5.1.2. Results of Verification

H_1: The restrictiveness of RoO would not influence the utilization of preferential tariffs.

Hypothesis 1, "restrictiveness of RoO would not influence the utilization of preferential tariffs," was rejected. Restrictiveness, one of the characteristics of RoO, places a burden and influences the application of preferential tariffs.

H_2: The complexity of RoO would not influence the utilization of preferential tariffs.

Hypothesis 2, "the complexity of RoO would not influence the utilization of preferential tariffs," was accepted. It can be interpreted as complexity, one of the characteristics of RoO does not influence the utilization of preferential tariffs, although it may make utilization of preferential tariffs difficult.

H_3: The uncertainty of RoO would not influence the utilization of preferential tariffs.

Hypothesis 3, "uncertainty of RoO would not influence the utilization of preferential tariffs," was rejected. It could be interpreted as uncertainty, one of the characteristics of RoO, places a burden on companies and influences the utilization of preferential tariffs.

H_4: The successful utilization of preferential tariffs would not influence the trade performance of import and export companies.

Hypothesis 4, "successful utilization of preferential tariffs would not influence the trade performance of import and export companies," was rejected. Although the characteristics of RoO make it difficult to utilize preferential tariffs, once the preferential tariffs are utilized successfully, it would have a huge impact on improving the trade performance of a company.

H_5: The degree of influence that each of the characteristics, among the characteristics of RoO, has on the utilization of FTA preferential tariffs would be the same for restrictiveness, complexity, and uncertainty.

As for hypothesis 5, "the degree of influence that each of the characteristics, among the characteristics of RoO, has on the utilization of FTA preferential tariffs would be same for restrictiveness, complexity, and uncertainty," complexity turned out to not have a statistically significant influence on the utilization of preferential tariffs. However, the degree of the influence on the utilization of preferential tariffs was in the order of uncertainty > restrictiveness > complexity.

5.2. Analysis Outcomes

We categorized the characteristics of RoO by type. Then we tested if these characteristics influence the utilization of FTA and preferential tariffs and whether such influences have a causal relationship with the trade performance of import and export companies. Below are the results of testing the null hypotheses—where the characteristics of PRoO are the variables.

First, restrictiveness, one of the characteristics of RoO, influences the utilization of preferential tariffs. The restrictiveness and strictness of RoO could place a burden on import and export companies at the preparatory phase for the utilization of FTA and preferential tariffs.

Second, complexity, one of the characteristics of PRoO, does not influence the utilization of preferential tariffs. The hypothesis that the complexity of RoO, a variable, would not influence the utilization of preferential tariffs was accepted. There might be difficulties in meeting the origin criteria and requirements, certifying origin, and preparing evidence documents; however, such difficulties were not significant in this study. This could be interpreted that such complexity does not have an impact serious enough to keep a company

that already has been involved in import and export from not utilizing preferential tariffs.

However, in the case of complex characteristics, different results were obtained from other variables, and it is thought that there will be differences in the results depending on the industry and company size regarding the complexity of the PRoO. There is a lack of analysis of industries and companies in this study. Also, since there is a difference in perception among respondents, it is necessary to study the effect of complexity by dividing it by industry and company in the future.

Third, uncertainty, one of the characteristics of RoO, influences the utilization of preferential tariffs. The result of the structural model analysis can be interpreted that uncertainty can cause companies to feel unstable in international trade where FTAs are utilized, which thus influences the utilization of preferential tariffs. The result was statistically significant.

Fourth, the successful utilization of preferential tariffs influences the trade performance of import and export companies. Although the utilization of preferential tariffs requires much time and effort to meet the origin rules and requirements and to prepare related documents, the successful utilization of preferential tariffs has a positive influence on the trade performance of companies. The influence was statistically significant.

However, the factors that affect a company's trade performance will be very diverse. It is difficult to determine a causal relationship with trade performance by limiting the use of FTA only. However, in this study, it may be meaningful to confirm that there is a significant effect on the trade performance of a company if the FTA is used well in the conditions of the characteristics and fulfillment of the rules of origin.

Fifth, concerning the analysis of the degree of influence that RoO characteristics have on the utilization of FTA and preferential tariffs, the influence of restrictiveness and uncertainty was statistically significant while complexity did not have a statistically significant influence. Nevertheless, the characteristics have an influence on the utilization of preferential tariffs in the order of uncertainty > restrictiveness > complexity.

In international trade, many characteristics of RoO are the factors that influence the utilization of FTA. In particular, restrictiveness and uncertainty have a direct influence on the utilization of preferential tariffs while complexity has a relatively smaller influence. This result could be viewed as, although the complexity of RoO may cause difficulties for companies in utilizing preferential tariffs, the difficulties are not serious enough to change a company' decision to use preferential tariffs. This also could be interpreted as the companies that already have been utilizing FTAs have a certain degree of ability to respond to problems due to complex RoO.

6. Conclusion

6.1. Research Summary and Implications

Korea has continuously and simultaneously concluded an increasing number of FTAs. In this context, much research has been conducted about the utilization of FTAs concerning each FTA or each industry. Contrarily, a relatively smaller number of studies approached the issue by categorizing the characteristics of RoO, a key factor for utilizing FTAs, and not much research has been done on how such characteristics have a direct influence on the utilization of preferential tariffs. Although FTAs are used to facilitate free trade, RoO became another

trade barrier to the utilization of FTAs. In this sense, RoO can be used as a policy instrument. Although an increasing number of countries have continued to take part in FTAs, the trend of protective trade has also become stronger. From the companies' perspective, complicated procedures and different rules are highly likely to increase risk factors. Nevertheless, many Korean companies are not well aware of RoO and are not prepared for origin verification. Additionally, since they do not have sufficient origin management systems, their lack of preparedness against the RoO characteristics could create a significant risk when the origin needs to be verified.

Companies need to have a clear understanding of the criteria and basic procedures required to utilize FTA preferential tariffs. FTA preferential tariffs are trade benefits, and origin verification can be required any time after the transaction is done. Therefore, import and export companies should prepare themselves for all possible situations through follow-up management. In this sense, this study approached the issue from the aspect of the influence of RoO on the utilization of preferential tariffs and the trade performance of a company and their relationships in FTAs. The effective utilization of FTAs is critical to facilitate international trade and increase trade volumes. However, the RoO that are essential requirements for the application of preferential tariffs in an FTA- could place a great burden on users of the rules.

This study attempted to investigate the influence of the RoO, a key part of an FTA, on the utilization of preferential tariffs and trade performance through a theoretical study and an empirical analysis to draw a conclusion. The results showed that the characteristics of RoO influence the utilization of preferential tariffs, although the influence varies depending on the characteristics, and that the influence affects the trade performance of a company. Below are the summarized results of the empirical analysis of this study.

First, the results show that the restrictiveness of RoO influences the utilization of preferential tariffs.

Second, the results show that the complexity of the selected RoO does not influence the utilization of RoO.

Third, the uncertainty of the selected RoO influences the utilization of preferential tariffs.

Fourth, the successful utilization of preferential tariffs influences the trade performance of domestic companies involved in imports and exports.

Fifth, concerning the degree of such influence on the successful utilization of FTA preferential tariffs, complexity and uncertainty have a statistically significant influence, while complexity does not. However, the standardized coefficient path showed that the characteristics have an influence in the order of uncertainty > restrictiveness > complexity.

6.2. Limitations of Research and Future Tasks

The limitations of this study include the fact that the testing of the hypotheses formulated based on previous studies drew a different conclusion from those of the previous studies. Some survey targets were import and export companies that have already been fully utilizing FTAs or have accumulated skills for the utilization of preferential tariffs. Therefore, the influence of the complexity of RoO differed from the influence of other RoO characteristics. Moreover, there was a limitation in the survey targets in terms of generalization. The survey targets need to be categorized by the degree of FTA utilization, by importers and exporters, and by industry, and the characteristics of each type of target and the differences among them should be investigated. In addition, it would be good if additional research such as R data

analysis would be continued by supplementing the analysis conducted in the survey method and combining it with time series analysis or economic aspects according to the use of the increasingly widespread preferential agreement.

If expected problems can be identified and such a category devises countermeasures, companies could use the findings as guidance for utilizing preferential tariffs and improving trade performance, depending on the category to which they belong.

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