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Determinants of Regional Trade Agreement Utilization: Evidence from Multiple Import Countries in Asia

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Keywords: Regional trade agreement; Utilization; Asia

JEL Classification: F15; F53

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1. Introduction

Enhancing firms' utilization of regional trade agreements (RTAs) has become important. According to the World Trade Organization (WTO), as of January 17, 2020, 303 RTAs were in force.[1] Even after RTAs came into effect, some firms continued to utilize

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[1] See https://www.wto.org/english/tratop_e/region_e/region_e.htm.

general tariff rates, such as most favored nation (MFN) rates. Generally, the major reason is that firms must conduct two additional processes to use an RTA regime: comply with rules of origin (RoOs) and obtain certificates of origin (CoOs). Firms will utilize an RTA regime only if the gains from lower RTA tariffs exceed the costs incurred.[2] Enjoying the benefits from RTAs requires that the number of RTA partner countries be increased, and firms' utilization of RTA regimes in trading must be enhanced.

The academic literature has uncovered the role of various elements in the utilization of preferences. Traditional factors include preference margin (i.e., MFN tariffs minus preference tariffs), RoOs, and transaction sizes. Cadot et al. (2006), Francois, Hoekman, and Manchin (2006), Manchin (2006), Bureau, Chakir, and Gallezot (2007), Hayakawa, Kim, and Lee (2014), and Hakobyan (2015) documented the significant contribution of these elements.[3] Some studies also examined the role of other elements. For example, Hayakawa, Kim, and Yoshimi (2017) investigated the effect of exchange rates and found that the appreciation of the export country's currency reduces RTA utilization rates. Hayakawa (2014) examined the effect of cumulation rule in RoOs, and Hayakawa, Yoshimi, and Urata (2018) investigated the impact of other available RTA tariff rates. In summary, these studies uncovered the significant effects of various elements on preference utilization.

In this study, the determinants of RTA utilization are examined by using RTA utilization data from multiple importing countries. Although many of the previously mentioned studies investigated the use of preference regimes, most of these studies employed data from a single importing country because of data access limitations. However, for single country data, the role of an importing country's characteristics cannot be investigated because of no variation across importing countries. In addition, although the use of European Union (EU) import data allows for the inclusion of multiple importing countries (because the EU consists of multiple member countries), existing studies that used EU data investigated the utilization of unilateral trade regimes, such as a generalized scheme of preferences (GSP). Because these preference regimes are granted to developing countries, exporting countries included in the empirical analysis are restricted to developing countries. In contrast, this study's exporting and importing countries include not only developing countries but also developed countries. The data used for this study have many variations across both exporting and importing countries.

Specifically, the import data obtained from customs or statistical agencies in six countries/economies in Asia are employed, including Indonesia, Japan, the Republic of Korea (henceforth, Korea), the Philippines, Taiwan, and Thailand. This study focuses on these countries' imports from the 10 Association of South-East Asian Nations (ASEAN)

[2] Cherkashin et al. (2015) and Hayakawa, Laksanapanyakul, and Urata (2016) estimate such costs for RTA utilization.

[3] Also, Conconi et al. (2018) found that, in the North American Free Trade Agreement (NAFTA), RoOs on final goods reduced intermediate goods imports from non-member countries by approximately 30 percentage points.

countries and the neighboring six countries (Australia, China, India, Japan, Korea, and New Zealand). Many bilateral or plurilateral RTAs are among these countries. Furthermore, the 16 exporting countries are currently negotiating a mega-RTA—called the Regional Comprehensive Economic Partnership (RCEP), which intends to create an RTA that covers the entire region. Enjoying the rich variation in exporting and importing countries uncovers the effects of various elements on RTA utilization, including exporter and importer characteristics.

The findings of this study are summarized as follows. An "RTA utilization rate," which is defined as the share of imports under RTA regimes out of total imports in RTA-eligible products, is defined. "RTA-eligible products" are products for which RTAs set tariff rates lower than MFN tariff rates. Large differences in the RTA utilization rate across this study's country-pairs were found. Then, the RTA utilization rate at the country pair-product level was regressed on various elements. As a result, the RTA utilization rate was found to be higher when the preference margin is larger, the importer's demand is larger, the exporter's gross domestic product (GDP) per capita is lower, and the importer's efficiency score on border handling is higher. Furthermore, lower RTA utilization rates were found when the GSP for least developed countries (LDC) is available, when exporting finished products, and when inward foreign direct investments (FDI) are larger in the importing country.

This study contributes to the literature in at least three ways. First, these results are obtained from the empirical analysis for the data with rich country-variation in both importing and exporting countries. Thus, this study's results have stronger external validity than existing studies that use single country data. Second, some of the findings of this study have never been revealed in the literature or are different from those in previous studies. For example, the role of FDI in preference utilization has never been examined in the literature. Furthermore, this study's result of a higher utilization rate for finished products is opposite to that from Hakobyan (2015), who focused on exports from developing countries. Third, RTA utilization rates in Asian countries, including developing countries, are presented. Few studies exist on preference utilization in Asia, whereas most existing studies examined those in the United States, the EU, or other developed countries. For example, Keck and Lendle (2012) reported RTA utilization rates for imports by Australia, Canada, the EU, and the United States. Indeed, their magnitude is comparable to that in Japan but not necessarily with respect to other Asian countries.

The remainder of this study is organized as follows. The next section examines RTA utilization rates in this region. After providing this study's empirical framework in section 3, the estimation results are reported in section 4. Last, section 5 concludes this study.

2. Utilization of RTAs in Asia

This study begins with the aggregated measures of RTA utilization rates, which are defined at a country pair level. Throughout the study, import data in 2016 for Indonesia, 2018 for the Philippines, 2018 for Thailand, 2018 for Japan, 2018 for Korea, and 2016 for Taiwan were used. The focus is on their imports from the 16 Asian countries previously specified. These import data are obtained from the respective country's customs or statistical agency; Indonesian Customs, the Philippine Statistics Authority, Thai Customs, Japanese Customs, Korean Customs, and Taiwanese Customs. Those entities cover all of the imports in each country.

In this region, ASEAN has acted as the hub of an RTA network. Since 1993, ASEAN countries have gradually eliminated tariffs for intra-ASEAN trade. Subsequently, ASEAN expanded its RTA network with "plus-one countries," including Australia, China, India, Japan, Korea, and New Zealand, by concluding so-called "ASEAN plus-one" RTAs. As a result, the following RTAs are covered in this study. The ASEAN Trade in Goods Agreement and the five ASEAN plus-one RTAs are available in the trade among the ASEAN countries. Between Japan and ASEAN countries, the ASEAN–Japan Comprehensive Economic Partnership (AJCEP) is available. Additionally, Japan has bilateral RTAs with all ASEAN countries, excluding Cambodia, Myanmar, and Laos, in addition to those with Australia, India, and New Zealand. Similarly, between Korea and ASEAN countries, the ASEAN–Korea Free Trade Agreement is available. Korea also has bilateral RTAs with Singapore, Vietnam, and all plus-one countries, excluding Japan. Last, Taiwan has bilateral RTAs with China, Singapore, and New Zealand.

Before examining RTA utilization rates, MFN tariff rates in the six importing countries are reviewed to determine the potential magnitude of the preference margins. In Table 1, the simple average of the MFN tariff rates is provided, which is calculated using the Tariff Analysis Online Facility provided by the WTO. The simple average rates are reported by the industry, which is defined by the tariff section of the harmonized system (HS). The three ASEAN countries have high MFN rates in transport equipment. Additionally, MFN tariff rates in agricultural and food industries (live animals, vegetable products, animal/vegetable fats and oils, and food products) are relatively high in Thailand. In contrast, in Japan, average MFN rates are relatively low: in most industries, they are less than three percent. Relatively high MFN rates can be found in food, leather, and footwear products. Korea highly protects its agricultural and food industries. Additionally, in Korea, many industries show average MFN rates higher than five percent. Taiwan keeps relatively high MFN rates for the agricultural and food industries and for transport equipment.

Table 1

The degree to which these RTAs are utilized in the imports of Indonesia, the Philippines, Thailand, Japan, Korea, and Taiwan is examined. The share of imports under RTA regimes out of total imports in RTA-eligible products is computed. Several issues

should be noted. First, when multiple RTAs exist in a country pair, the imports under all available RTAs are simply aggregated. Furthermore, an RTA-eligible product is identified if at least one RTA offers lower tariff rates than MFN rates. Second, the data for Indonesian imports do not include any import records under the AJCEP. The utilization rate of Indonesian imports from Japan indicates only that of the bilateral RTA between Indonesia and Japan.[4] Third, products with non-ad valorem MFN tariff rates are not included. This exclusion may underestimate the RTA utilization rate because such products tend to have a high preference margin in substance. Last, between China and Taiwan, only the early-harvest program was entered into force under the Economic Cooperation Framework Agreement (ECFA). Therefore, the number of eligible products is only approximately 300.[5]

Table 2 reports the aggregated measures of the RTA utilization rate. Four noteworthy points are considered. First, when the GSP for LDC is available, RTA utilization rates are relatively low. This observation is found in particular in exports from Cambodia, Laos, and Myanmar to Japan. The relatively low utilization rate may simply occur because the GSP for LDC offers lower tariff rates than do RTAs. However, the utilization rate is rather high when exporting from Myanmar to Korea, although the GSP for LDC is available. Second, the utilization rates seem more depressed when exporting from higher-income countries, such as Japan, Korea, or Singapore. Third, the utilization rates tend to be higher when exporting to countries with larger markets, that is, Japan and Korea. Last, exceptionally high utilization rates (i.e., those greater than 90%) can be found when exporting from Australia and the Philippines to Japan, exporting from Myanmar to Korea, exporting from Brunei to the Philippines, and exporting from New Zealand to Taiwan.

Table 2

3. Empirical Framework

In this section, the conceptual framework is first discussed to consider the determinants of RTA utilization. Then, the empirical framework is presented to examine those determinants.

Demidova and Krishna (2008) presented the simple theoretical model of firms' choice of tariff regimes. The basic settings in their model are as follows. The representative consumer in a country is assumed to have the preference specified as a constant elasticity of substitution function over the varieties. A continuum of monopolistically competitive heterogeneous firms in terms of productivity exists, similar to the setting in Melitz (2003).

[4] The exclusion of imports from Japan under the AJCEP regime will not seriously underestimate the RTA utilization rate because bilateral RTAs rather than AJCEP are expected to be mainly used among Japan and ASEAN countries, if available. For example, when the Philippines imported goods from Japan in 2018, the share of imports under the bilateral RTA out of total imports under RTAs was 97%. The same share level was also found when Thailand imported from Japan in 2018.

[5] For more details on the ECFA, see, for example, Chang and Hayakawa (2014).

Exporters can choose either RTA or general tariff rates (i.e., MFN rates) when exporting their varieties to an RTA partner country. Whereas RTA tariff rates are lower than MFN rates, firms need to comply with the RoOs of their variety. This compliance increases their procurement costs because the original sources should have been optimal. Furthermore, when using RTA rates, firms also bear a certain level of fixed costs to certify that their products meet the RoOs.

Under these settings, the productivity cutoff is defined, which is the cutoff at which export profits under the MFN regime become equal to those under the RTA regime. Only firms with higher productivity than the cutoff invoke RoOs and use the RTA regime in exporting. Thus, firms with higher productivity are more likely to choose the RTA regime. Furthermore, the productivity cutoff depends on various characteristics, including wages in the exporting country, the importing country's market size, fixed costs for RTA utilization, procurement adjustment costs, and preference margin. The cutoff becomes low when the exporting country has high wages, the importing country has a large market size, RTA utilization fixed costs and procurement adjustment costs are low, and the preference margin is high. For example, an increase in an importer's market size or a reduction in an exporter's wages enlarges firms' operating profits in general, making even less productive firms cover the fixed costs for RTA use.

The effects of these elements on the RTA utilization rate are also similar to those on the productivity cutoff. Indeed, an exporter's wages, an importer's market size, and fixed costs affect the utilization rate only through changes in the productivity cutoff, that is, those of the number of RTA users, because these elements change the magnitude of exports in both cases of RTA use and non-RTA use at the same proportion under the settings in Demidova and Krishna (2008). In contrast, the preference margin and the procurement adjustment costs affect not only the number of RTA exporters but also the relative magnitude of their exports to MFN users' exports. Those impacts on a relative scale have the same direction as those on the number of RTA users. For example, the reduction in procurement adjustment costs increases not only the number of RTA exporters but also the magnitude of exports by each RTA exporter. As a result, although the impacts of an increase in procurement adjustment costs on RTA utilization rates are negative, those of an increase in the preference margin are positive.[6]

Using this mechanism, the estimation equation is specified as follows.

$$Utilization_{ijp} = \beta_1 Margin_{ijp} + \beta_2 \ln GDP_j + \beta_3 \ln GDP\ \ per\ \ capita_i + \beta_4 Border\ \ score_i + \beta_5 Border\ \ score_j + \beta_6 \ln Distance_{ij} + \mathbf{u} + \epsilon_{ijp}. \quad (1)$$

In this equation, $Utilization_{ijp}$ refers to the RTA utilization rate when exporting product p from countries i to j. The independent variables include preference margin (*Margin*), the log of an importer's GDP, and the log of an exporter's GDP per capita. As a preference margin,

[6] The distribution of firm productivity is another factor to determine the RTA utilization rate. Such a distribution in each country is controlled for by introducing export country-product fixed effects in the empirical analysis, that is, Table 5.

the MFN tariff rate minus the lowest available RTA tariff rate is used when multiple RTAs exist. The importer's GDP is used as a proxy for its demand. Finding the proxy variable for wages is challenging because the data on observable wages also reflect workers' quality or skills. Because the export countries in this study include LDC, for which a data limitation is likely, GDP per capita is selected. However, note that this measure represents not only wages but also various other elements, such as the degree of economic development. As a control variable, the log of the geographical distance between two countries (*Distance*) is also introduced, in addition to the logs of the importer's and the exporter's scores on trading across borders (*Border score*). These variables are expected to control for some of the trade costs other than tariffs. **u** includes a set of fixed effects.

Variables related to RoOs are not explicitly introduced for at least three reasons. First, some previous studies introduced the RoOs restrictiveness index proposed in Estevadeordal (2000) or dummy variables on RoOs types (e.g., Carrere and De Melo, 2006). However, in this study on RTAs, no ready-made databases of RoOs "codes" exist that can be used to create the restrictiveness index or the dummy variables. Second, as mentioned in the previous section, many RTAs overlap between the two countries in the region of this study. Because RoOs may differ across RTAs, setting one specific type of RoOs is problematic for creating a single measure of the RoO restrictiveness index or the RoOs dummy variable. Third, although RoOs across RTAs may be generally different, this study's focus on trade in Asia minimizes such a difference because RoOs are similar across RTAs among Asian countries. In particular, a typical type of RoOs in Asia is to require meeting either change-in-heading or a regional value content of 40%. Then, the variation of RoOs *across products* was controlled for by introducing industry or product fixed effects.

This study's country-pairs and years are the same as those presented in the previous section. Data on imports from 16 Asian countries are used: 2016 for Indonesia, 2018 for the Philippines, 2018 for Thailand, 2018 for Japan, 2018 for Korea, and 2016 for Taiwan. The preference margin is calculated using the Tariff Analysis Online Facility provided by the WTO. The product p in the empirical analysis is defined at a tariff-line level in each country. The data on GDP and GDP per capita are obtained from the World Development Indicator maintained by the World Bank. The data on geographical distance is drawn from the CEPII website. The data on scores on trading across borders are obtained from the Doing Business database by the World Bank.[7] The basic statistics and correlation matrix among the variables in this study are provided in the Appendix.

Last, noteworthy is that the analysis in this study is a cross-sectional one. The data, which are not panel data, include the only single year for each country. Although the data exist for a few years for specific countries, those data do not represent long enough periods to investigate the role of country characteristics after controlling for country fixed effects. Therefore, the correlation of RTA utilization rates is examined with several factors rather

[7] According to the metadata of this database, the score for trading across borders is a simple average of the cost to export and import, time to export and import, and the number documents to export and import.

than the causal impact of such factors on RTA utilization rates. Nevertheless, the analyses in this study are still invaluable because few studies exist on RTA utilization rates that use the data with multiple importing countries. Indeed, although recent studies on gravity estimation tend to examine the causal effects, prior studies conducted cross-sectional analyses. Thus, causal analyses are left for the future when researchers can gain access to RTA utilization data in a more significant number of countries.

4. Empirical Results

This section reports the estimation results. Because the data on RTA utilization are obtained from the importer side, standard errors are clustered by importing countries in all estimations. In the subsequent discussion, various models with various levels of fixed effects are estimated. The number of observations for estimation differs by specifications because singleton observations are dropped.

The estimation results of the ordinary least square (OLS) are indicated in column (I) in Table 3. In this estimation, fixed effects are controlled at an HS six-digit level. The result in the preference margin is the opposite of the expectation. Its coefficient is estimated to be significantly negative. An importer's GDP has an insignificant coefficient, whereas the coefficient for an exporter's GDP per capita is significantly negative. The efficiency scores within borders have a significantly positive coefficient for importers but not for exporters. The coefficient for geographical distance turns out to be insignificant. This model is also estimated by using the fractional logit method proposed by Papke and Wooldridge (1996), since the dependent variable in this study lies in the unit interval, that is, [0, 1]. To prevent an incidental parameter problem, the fixed effects defined in the section on HS classification rather than an HS six-digit are controlled for. The results are presented in column (II). Although the magnitude of the coefficients is different, the statistical significance does not change compared with the case of the OLS results, except that the coefficient for the preference margin becomes insignificant.

Table 3

Worth discussing are these results. Although the literature has shown that the preference margin plays a key role in RTA utilization, the robust results that would indicate such a role are not necessarily found. The insignificant result in the importer's GDP is somewhat surprising because it seemed to be one of the critical elements in Table 2.[8] In contrast, the coefficient for an exporter's GDP per capita is significantly negative, which is

[8] These insignificant results do not change even if the log of an importer's border score is excluded, which has a relatively high correlation with the importer's GDP, as found in Table A2 in the Appendix. Furthermore, when the importer's GDP per capita was introduced instead of the importer's GDP, the coefficient for the importer's GDP per capita is again estimated to be insignificant.

consistent with the trend found in Table 2. The negative sign is also compatible with the theoretical prediction when GDP per capita is used as a proxy for wages. Another interpretation is that, in low-income countries, goods are exported by a small number of large firms. If such firms use RTA regimes, the RTA utilization rates evaluated at a value-basis may be higher. The significant importance of efficient borders only on the importer side may indicate that the border clearance in import customs plays a more critical role in RTA utilization than the process of issuing CoOs in an exporting country (if the latter is correlated with border efficiency).

As implied in Table 2, the availability of other preference regimes (e.g., GSP for LDC) seems to play a vital role in the magnitude of the RTA utilization rate. Therefore, some elements related to other preference regimes are examined. In addition to the GSP, various other preference regimes exist. For example, the import duty for some goods (e.g., capital goods) might be exempted by the investment promotion regime against foreign companies. Additionally, the duty-drawback regime exempts or reduces the duty for raw materials imported for the production of export products.[9] The benefits similar to those offered by these duty-drawback regimes may be provided to firms in designated special/free economic zones. If these preference regimes are available, firms may not need to utilize RTA regimes.

Three variables are introduced into the model to examine the role of these other preference regimes. The first one is a log of inward FDI (in terms of stock) in the importing country (*Importer's FDI stock*). Foreign companies tend to locate in special/free economic zones or enjoy investment promotion regimes. Thus, the high utilization of such other regimes is expected in importing countries with large inward FDI.[10] Second, a dummy variable equal to a value of one if a concerned product is categorized into finished products is introduced (*Finished Dummy*). Because finished products cannot be further processed, the duty-drawback regime is less utilized when importing finished products. Finished products are defined as items categorized into 112, 122, 41, 51, 52, 61, 62, or 63 in the Broad Economic Categories classification. Third, a dummy variable that takes the value of one if GSP for LDC is available is introduced (*LDC Dummy*). Specifically, it becomes the value of one when exporting from Cambodia, Laos, or Myanmar to Japan or Korea.

The estimation results of the OLS and fractional logit methods are reported in columns (III) and (IV), respectively. Because the dummy variable on finished products is defined at an HS-six-digit level, section fixed effects are controlled for in the fractional logit model and

[9] In several studies, the economic effects of duty drawback regimes were examined. The examples include Hamada (1974), Panagariya (1992), Cadot, de Melo, and Olarreaga (2003), Ianchovichina (2004, 2007), Mah (2007), and Brandt and Morrow (2017).

[10] The data are obtained from the UNCTAD Stat managed by the United Nations Conference on Trade and Development. We do not use the inward FDI at a bilateral basis from the following two reasons. One is that due to our inclusion of developing countries, the reliable and comparable data on bilateral FDI are not available. The other is that Japanese firms have developed international production networks in Asia. They get engaged in back-and-forth trade among them across Asian countries. The FDI defined at a country pair-basis results in masking such trade.

the OLS estimation, that is, column (III). The previous variables, that is, those included in column (I), have similar results as before. One notable difference is that the coefficients for an importer's GDP turn out to be significantly positive. The coefficients for the importer's inward FDI are negatively significant, indicating that the utilization rate is lower when more foreign companies exist in the importing country. This result represents the first evidence in the literature on the role of FDI in RTA utilization rates. The dummy variable on GSP for LDC also has a negative coefficient but is insignificant in the OLS result, that is, column (III). The insignificant result in the OLS is partly explained by the high RTA utilization rate when exporting from Korea to Myanmar, as shown in Table 2.

The dummy variable on finished products has a positive and significant coefficient, as is consistent with the previously described expectation. This result suggests that the RTA utilization rate is higher when importing finished products. Worth noting is that this result is the opposite of the result in Hakobyan (2015), who found that the utilization rate of the GSP regime in exporting to the United States is higher in primary products. Her interpretation of this result was that unprocessed products do not require various inputs and, thus, are easier to meet the RoOs than more processed manufacturing products. In contrast to her result, this study found a higher utilization in more processed products among Asian countries probably because other preference regimes (e.g., a duty-drawback regime) are preferred when importing less processed products in Asia. In Asia, where other preference regimes have been popular in international business[11], the effect of other preference regimes on RTA utilization becomes stronger than that of RoOs.

Next, three robustness checks are conducted. First, to check the robustness of the result in the dummy on finished products, it is again regressed on after controlling for more elements. Specifically, in Table 3, although only some observable elements and section fixed effects are introduced, country pair fixed effects in addition to section fixed effects are controlled for. In other words, all country-specific factors are entirely controlled by fixed effects. The result by the OLS method is provided in column (I) in Table 4 and again presents the significantly positive coefficient for this dummy variable. Such a result does not change even if the fractional logit model is estimated, as indicated in column (II). In this estimation, exporting country fixed effects and importing country fixed effects are introduced instead of country pair fixed effects. Also controlled for is the country pair-specific element geographical distance, although its coefficient is insignificantly estimated.

Table 4

Second, as a proxy variable for demand, importer imports from the world (*Importer's total imports*) are used instead of the more aggregated measure of GDP. Because this variable has an importer-product dimension, country pair fixed effects and exporter-product fixed

[11] As shown in Figure A1 in the Appendix, for example, other preference regimes account for 46% of all imports into Thailand from Japan during 2018.

effects can be controlled for. This specification allows us to investigate the role of demand with more controls. Furthermore, the inclusion of exporter-product fixed effects contributes to controlling for the distribution of firm productivity in each exporting country. The result is presented in column (III) in Table 4 and indicates the significantly positive coefficient for importer imports from the world, although the preference margin again has an insignificant coefficient. A larger demand (in terms of total imports) in the importing country is associated with the RTA utilization rate.

Third, so far, significantly positive results in the preference margin have not been obtained. To check whether such results still exist even after controlling for as many other elements as possible, fixed effects with the full dimension, that is, country pair fixed effects, importer-product (tariff-line-level) fixed effects, and exporter-product (HS six-digit-level) fixed effects, are introduced. In other words, the role of preference margin is examined after controlling almost all of the remaining elements. The result from the OLS method is provided in column (IV) and indicates a significantly positive coefficient for the preference margin, which is consistent with the results of many existing studies. This result implies that controlling for other elements is essential when evaluating the effect of the preference margin.

5. Conclusion

In this study, the determinants of RTA utilization were empirically examined using the RTA utilization data with rich country-variation in both importing and exporting countries. Specifically, trade data among 16 exporters and six importers in Asia were utilized. As a result, the RTA utilization rate was found to be higher when the preference margin is larger, the importer's demand is larger, the exporter's GDP per capita is lower, and the importer's border handling efficiency score is higher. Furthermore, lower RTA utilization rates were also found when the GSP for LDC is available, when exporting finished products, and when the inward FDI is larger in the importing country. These results, some of which are new to the body of literature, have stronger external validity than existing studies using single country data.

Exporting countries examined in this study are negotiating the RCEP. The RCEP increases trade, especially between countries that remain not covered by any RTAs because the preference margin becomes positive. Another key feature of the RCEP is to include the 16 countries in one RTA. If firms enjoy a cumulation rule in the RoOs, they could more easily comply with RoOs than before. The use of the cumulation rule induces firms to switch from using other preference regimes (e.g., a duty-drawback regime) to that of an RTA regime (i.e., RCEP) because the former regime cannot be used in the final stage of supply chains, that is, finished products. Improving the procedure of CoOs, that is, reducing RTA utilization costs is essential to encourage firms to use the cumulation rule.

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Table 1. Simple Average of MFN Tariff Rates (%)

	IDN 2016	JPN 2018	KOR 2018	PHL 2018	THA 2018	TWN 2016
Live animals	5	8	20	10	11	19
Vegetable products	5	6	107	10	22	20
Animal/vegetable fats and oils	4	4	14	9	22	13
Food products	22	14	29	11	28	19
Mineral products	3	1	4	2	2	1
Chemical products	5	2	8	3	3	3
Plastics and rubber	9	2	7	8	6	5
Leather products	9	11	8	7	10	3
Wood products	5	3	6	7	6	2
Paper products	4	0	0	6	3	0
Textiles	14	7	10	11	15	9
Footwear	16	15	10	10	20	6
Plastic or glass products	8	1	8	7	11	7
Precious metals	7	1	5	5	3	0
Base Metal	9	1	4	5	6	2
Machinery	5	0.0	6	3	4	3
Transport equipment	20	0.1	6	20	49	9
Precision machinery	5	0.2	7	2	3	2
Miscellaneous	10	2	5	8	14	3

Source: Calculated by the authors using the Tariff Analysis Online Facility provided by the WTO

Table 2. RTA Utilization Rates (%)

	Importer					
	IDN	JPN	KOR	PHL	THA	TWN
Exporter	2016	2018	2018	2018	2018	2016
Australia	36	96	79	54	64	
China	38		50	63	48	41
India	31	82	75	35	53	
Japan	29			18	38	
Korea	28			31	50	
New Zealand	65	16	89	81	82	98
Brunei Darussalam	38	70	67	92	15	
Indonesia		87	84	79	76	
Cambodia	28	10	56	59	70	
Laos	70	19	39	75	65	
Myanmar	36	7	91	67	43	
Malaysia	45	79	47	55	37	
Philippines	44	95	46		51	
Singapore	24	52	19	26	32	36
Thailand	49	93	69	73		
Vietnam	39	82	64	60	71	

Note: This table reports the share of RTA imports out of total imports in RTA-eligible products.

Source: Calculated by the authors using data from Indonesian Customs, the Philippine Statistics Authority, Thai Customs, Japanese Customs, Korean Customs, and Taiwanese Customs.

Table 3. Baseline Results

	(I)	(II)	(III)	(IV)
Margin	-0.140*	-0.32	-0.004	-0.041
	[0.062]	[0.547]	[0.137]	[0.584]
ln Importer's GDP	0.027	0.108	0.073**	0.307**
	[0.021]	[0.137]	[0.023]	[0.132]
ln Exporter's GDP per capita	-0.046*	-0.293*	-0.049*	-0.291*
	[0.022]	[0.160]	[0.021]	[0.151]
ln Importer's border score	0.410***	2.270***	0.379***	2.283***
	[0.078]	[0.613]	[0.076]	[0.441]
ln Exporter's border score	-0.079	-0.214	-0.105	-0.487
	[0.194]	[1.157]	[0.205]	[1.175]
ln Distance	-0.012	-0.021	-0.013	-0.051
	[0.058]	[0.353]	[0.058]	[0.355]
ln Importer's FDI stock			-0.087**	-0.463***
			[0.024]	[0.138]
Finished Dummy			0.023*	0.141**
			[0.010]	[0.066]
LDC Dummy			-0.275	-1.377*
			[0.144]	[0.715]
HS 6-digit FE	X			
Section FE		X	X	X
Method	OLS	Fraction	OLS	Fraction
Number of obs	149,939	150,082	150,082	150,082
Adj R-squared	0.2049		0.1453	
Log pseudolikelihood		-72371		-71744

Source: Authors' estimation

Notes: The model is estimated using the OLS method (OLS) or the fractional logit method (Fraction). The dependent variable is the RTA utilization rate. ***, **, and * indicate 1%, 5%, and 10% significance, respectively. The square brackets denote standard errors clustered by importers.

Table 4. Robustness Checks

	(I)	(II)	(III)	(IV)
Margin	0.043	0.242	0.029	0.557**
	[0.122]	[0.619]	[0.035]	[0.159]
ln Importer's total imports			0.023***	
			[0.004]	
ln Distance		0.031		
		[0.086]		
Finished Dummy	0.026**	0.165**		
	[0.009]	[0.065]		
Section FE	X	X		
Country pair FE	X		X	X
Importer FE		X		
Exporter FE		X		
Importer-product FE				X
Exporter-product FE			X	X
Method	OLS	Fraction	OLS	OLS
Number of obs	150,082	150,082	137,607	129,362
Adj R-squared	0.2264		0.4126	0.447
Log pseudolikelihood		-67560		

Source: Authors' estimation

Notes: The model is estimated using the OLS method (OLS) or the fractional logit method (Fraction). The dependent variable is the RTA utilization rate. ***, **, and * indicate 1%, 5%, and 10% significance, respectively. The square brackets denote standard errors clustered by importers.

Appendix. Other Tables

Table A1. Basic Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Utilization	150,082	0.266	0.387	0	1
Margin	150,082	0.089	0.092	0.000	7.953
ln Importer's GDP	150,082	13.562	0.723	12.710	15.419
ln Exporter's GDP per capita	150,082	2.460	1.225	0.176	4.168
ln Importer's border score	150,082	4.340	0.149	4.140	4.527
ln Exporter's border score	150,082	4.333	0.147	3.865	4.527
ln Distance	150,082	8.006	0.643	6.264	9.239
ln Importer's FDI stock	150,082	16.704	0.450	15.932	17.034
Finished Dummy	150,082	0.436	0.496	0	1
LDC Dummy	150,082	0.013	0.112	0	1
ln Importer's total imports	150,082	15.150	2.414	0	23.954

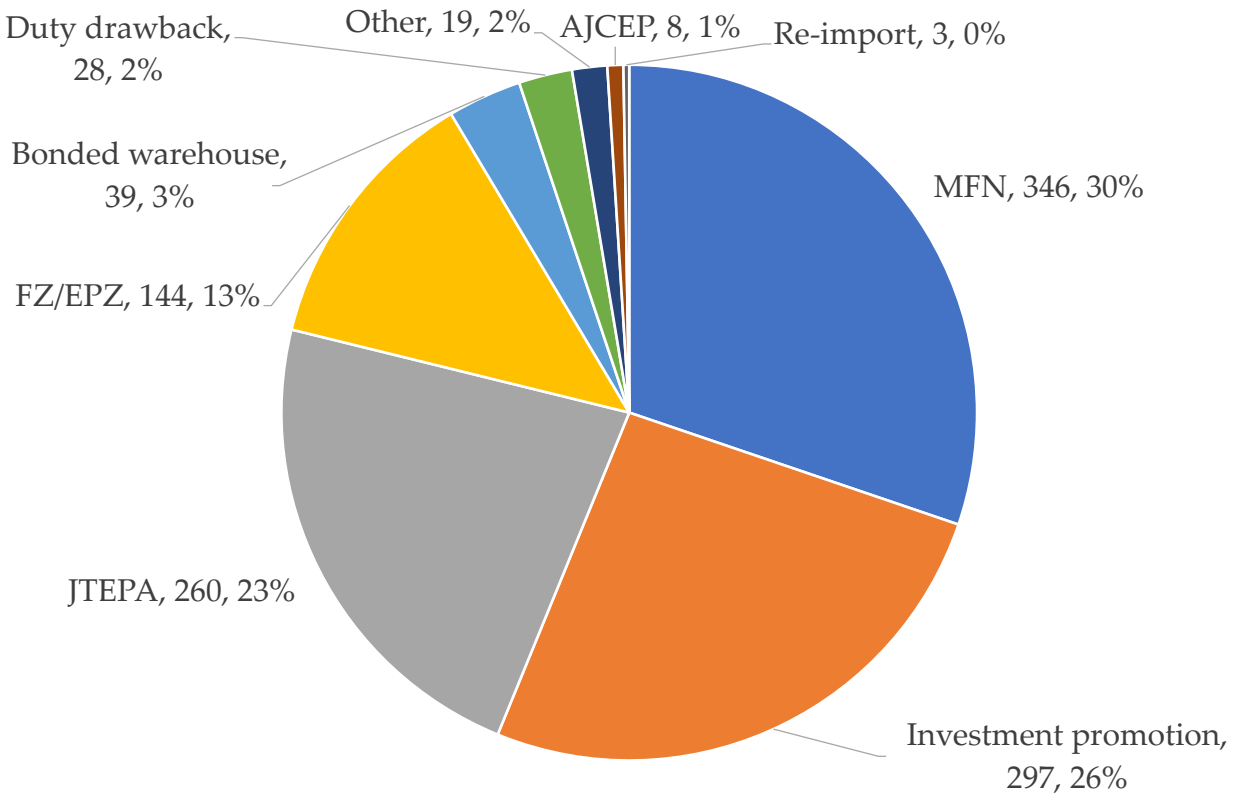
Source: Authors' compilation

Table A2. Correlation Matrix

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
Utilization	[1]	1									
Margin	[2]	0.039	1								
ln Importer's GDP	[3]	0.166	-0.045	1							
ln Exporter's GDP per capita	[4]	-0.220	-0.029	-0.214	1						
ln Importer's border score	[5]	0.226	0.102	0.379	-0.170	1					
ln Exporter's border score	[6]	-0.189	-0.022	-0.188	0.726	-0.209	1				
ln Distance	[7]	-0.022	-0.040	0.188	0.193	0.008	-0.055	1			
ln Importer's FDI stock	[8]	0.050	0.162	0.652	-0.145	0.212	-0.148	0.034	1		
Finished Dummy	[9]	0.024	0.252	0.036	-0.023	0.071	-0.036	0.017	0.021	1	
LDC Dummy	[10]	0.000	0.017	0.185	-0.188	0.123	-0.196	0.050	0.056	0.086	1
ln Importer's total imports	[11]	0.116	-0.076	0.219	-0.088	0.147	-0.060	0.074	0.119	-0.025	0.088

Source: Authors' compilation

Figure A1. Imports of Thailand from Japan in 2018 by Tariff Regimes (Regime, Billion Thai Baht, %)



Source: Thai Customs.

Note: JTEPA, FZ, EPZ, and AJCEP refer to Japan-Thailand economic partnership agreement, free zone, economic processing zone, and ASEAN-Japan comprehensive economic partnership, respectively.