



Asia-Pacific  
Economic Cooperation

# Rules of Origin in Modern Trade Agreements: Trends and Challenges

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## INTRODUCTION

Rules of origin (ROO) and their associated procedures are critical trade policy instruments for determining the eligibility of goods for preferential treatment in preferential trade agreements (PTAs). By defining for each product the contents and/or production processes that make the product originating from the PTA area, ROO prevent trade deflection and ensure that the benefits of PTAs are limited to the signatories. However, ROO may be used for protectionist purposes by import-competing industries, such as by parts and components' manufacturers that seek to restrict intra-PTA region producers' access to imported inputs in their industries. Restrictive ROO can also dampen trade, particularly for micro, small, and medium-sized enterprises (MSMEs) that have limited capacities to decipher complicated ROO or refashion their supply chains and production processes to meet restrictive ROO.

However, there is still limited empirical evidence on the extent to which *differences across* ROO regimes in the world's hundreds of PTAs impact MSMEs' ability to export and diversify their export markets. It could be hypothesized that due to the differences in ROO across PTAs available to an MSME, the MSME may choose to export its products using only the PTAs where it can meet the preferential ROO, instead of seeking to diversify and maximize benefits across multiple PTAs that are available to it.

This study seeks to explore this hypothesis based on selected PTAs in the APEC region, by examining (1) how preferential ROO provisions have evolved in the PTAs; (2) the differences and restrictiveness of various product-specific ROO and their associated procedures in the selected PTAs; and (3) the impacts of different types of product-specific ROO and their associated procedures on businesses and especially MSMEs' utilization of the various PTAs available to them.

The study focuses on nine PTAs: ASEAN-Australia-New Zealand FTA (AANZFTA), Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP), Pacific Alliance, Regional Comprehensive Economic Partnership (RCEP), and the U.S.-Mexico-Canada Agreement (USMCA), as well as four bilateral PTAs signed by the Association of Southeast Asian Nations (ASEAN), respectively with China; Hong Kong, China; Japan; and Korea.

The study is to inform future discussions among APEC Members on preferential ROO and their associated procedures that would maximize the benefits of trade liberalization especially for MSMEs. This work is part of the Trade and Investment Pillar under APEC's *Free Trade Area of the Asia-Pacific (FTAAP) Agenda Work Plan*.

This study has four sections. The first section reviews literature on ROO restrictiveness and how restrictive and diverse preferential ROO can affect utilization of PTA preferences. Section two explains the types and restrictiveness of product-specific ROO in the nine selected PTAs, and analyzes divergence in ROO and their associated procedures across these PTAs. Section three turns to exploring the relationship between ROO and their associated procedures' restrictiveness and divergence on the one hand, and PTA utilization on the other, using Australian and Japanese import data. It also explores survey data on MSMEs' views on how different ROO regimes and their associated procedures shape their decision to export to PTA

partner markets. The fourth section presents policy recommendations to alleviate exporters' compliance costs associated with ROO and their associated procedures in the APEC region.

## 1. REVIEW OF LITERATURE

ROO ensure the integrity of a PTA by preventing goods originating from non-parties claiming the preferential tariff rates when these goods are exported from one party to the PTA to another. To achieve this objective, parties to the PTA will agree on ROO. The various ROO may be based on criteria such as minimum regional value added and tariff classification changes that need to occur within the PTA region, for the product to be considered originating and hence eligible for PTA tariff preferences. There are considerable variations in ROO across PTAs and across sectors, though there are also ROO “families” such as in the U.S. and EU’s respective PTAs (Suominen 2004; Carrere and de Melo 2004).

ROO can pose two particular challenges to trade. First, ROO can be written in a way that makes them akin to a non-tariff barrier that favors intra-regional producers and labor (for example in sectors like textiles) and limits the access of intra-regional final goods manufacturers (for example apparel producers using textiles) to extra-regional inputs (Estevadeordal and Suominen, 2003; Suominen 2004; Cadot et al., 2006). Final goods producers may also seek restrictive ROO, for example to prevent extra-regional competitors from importing goods to a low-tariff PTA member and transshipping them to another PTA member under PTA preferences, with limited intra-PTA processing. Indeed, the design of the various product-specific ROO has been found to be subject to intense lobbying by protectionist interests in the PTA members. In some products, ROO that appear to be restrictive may simply reflect the characteristics of the product. For example, commodities and live animals traded under PTA preferences are inherently obtained from within the PTA region and thus a wholly obtained rule does not necessarily imply protectionism. The actual restrictiveness of ROO is also shaped by firms’ pre-PTA supply chains.

However, when ROO are restrictive, they can undermine exporters’ incentives to take advantage of PTA preferences, as it may raise production costs. Cadot et al. (2017) find that the average ad-valorem equivalent (AVE) of ASEAN’s ROO is 3.4 percent across all instruments and sectors, and the trade-weighted average is 2.1 percent.

The second challenge is that ROO, even less restrictive ROO, may be defined in a way that is difficult for businesses to understand, undermining their use of PTA preferences (Augier, Gasiorek, and Lai-Tong 2005; Cadot et al. 2006; Brenton and Manchin, 2003; Brenton 2011).<sup>1</sup> These challenges may be compounded by complex origin certification processes. Cadot et al. (2006) and Manchin and Pelkmans-Balaoing (2007) find that even when preferential treatment is available, firms often opt to export under most-favored-nation (MFN) rates due to the lower administrative burden. Only when preference margins widen considerably do PTA preferences have a positive impact on trade (Manchin and Pelkmans-Balaoing 2007). Small firms are especially hard-pressed to meet ROO due to their limited compliance capabilities (Takashi and Urata 2008; Hayakawa, 2015). Evidence is mixed on whether small firms are able to learn to use preferences over time.<sup>2</sup>

Recent studies have further nuanced these findings. For example, Legge and Lukaszuk (2024) find that the application of and compliance with ROO renders PTA utilization especially low in industries with urgent shipments and complex products. After all, utilization of trade preferences can entail new sourcing requirements that are difficult to meet quickly.

The relevance of ROO as gatekeepers of PTA preferences can grow over time as preferential tariff liberalization deepens and the preference margin grows between preferential and MFN tariffs. While intra-PTA exporters should gain an edge over extra-regional exporters when preference margin grows, restrictive and complex ROO can torpedo their PTA utilization altogether. Conversely, if the MFN rate of a product is low or close to zero, exporters are likely to opt for the MFN channel rather than utilizing PTAs as it may not be cost-effective to make extra efforts to meet the preferential ROO. PTA utilization rates would as a result be low under these circumstances.

A significant further challenge fueled by the proliferation of PTAs, albeit one that is less analyzed, is the limited convergence of ROOs across PTAs. For example, while ROO regimes are similar across U.S. PTAs and across European Union's PTAs, product-specific ROO differ considerably *between* U.S. and EU PTAs "models". Thus, firms in an economy that has a PTA with both the U.S. and EU can face widely different requirements when seeking preferential entry into these two markets. Indeed, divergent origin criteria across PTAs, such as different thresholds for regional value content, tariff classification rules, and product-specific requirements can mean that an exporter may need to change its production processes according to the specific PTA. In a survey of Latin American and Asian exporters, Estevadeordal, Suominen, and Wignaraja (2009) find that the differences in ROO across PTAs force companies and especially MSMEs to seek to align sourcing strategies and production processes to meet the ROO in only one or few PTA markets, even if other PTA markets were available. The challenges of meeting multiple diverse ROO across PTAs may make the MSMEs forego valuable export opportunities in new markets.

The following sections explore the restrictiveness and divergence of ROO and their associated procedures across nine selected Asia-Pacific PTAs, and the implications of their restrictiveness and divergence on the export potential of MSMEs in APEC region.

## 2. MEASURING THE RESTRICTIVENESS AND DIVERGENCE OF PRODUCT-SPECIFIC ROO AS WELL AS ROO REGIMES AND THEIR ASSOCIATED PROCEDURES IN NINE PTAS

This section analyzes the types and restrictiveness of product-specific ROO in nine selected trade agreements in the APEC region. We map all product-specific ROO at the sub-heading level (or at 6-digits) of the Harmonized System (HS) in these nine agreements; translate the qualitative ROO data into a quantitative restrictiveness score for each product in each agreement; and, based on the qualitative data and the restrictiveness scores, produce two assessments of ROO divergence at the HS 6-digit level<sup>3</sup>. This section also maps out regime-wide ROO and their associated procedures that can reduce the restrictiveness of product-specific ROO in the nine agreements.

To recap, the nine PTAs under study include AANZFTA, CPTPP, Pacific Alliance, RCEP, and USMCA, as well as the four bilateral PTAs signed by ASEAN (respectively with China; Hong Kong, China; Japan; and Korea).

### 2.1 TYPOLOGY OF PRODUCT-SPECIFIC ROO

As the first step, all product-specific ROO at the sub-heading level (or at the level of HS 6-digits) in the nine agreements were mapped from PDF files or websites onto an Excel as the ROO are written in the various agreements. The ROO were then standardized into a typology. There are four main philosophies for defining ROO (i.e. for the product to be originating from the PTA region): a wholly obtained one where the product, typically an agricultural product, has to be completely produced in the PTA region or member; a change in tariff classification (how many tariff subheadings the producer has to “leap” over); regional value content (how much of the good’s value or content must originate from within the PTA region); and a technical requirement (what types of production processes the product must undergo).

These four philosophies are being broken down into finer distinctions and subcategories as follows:

- I. **WO** – Wholly obtained or produced: A product that is entirely obtained or produced in the PTA region. This ROO typically applies to natural resources, commodities, agricultural goods, and live animals. Typically, wholly obtained refers to wholly produced or obtained in the territory of one or more of PTA parties. In the ASEAN-Korea FTA and ASEAN-Hong Kong, China FTA, the ROO specifies that the goods must be wholly obtained in the *exporting* party’s territory.
- II. **Change in tariff classification**
  - a. **CTC** – Change in chapter: A product must change its HS code at the 2-digit level or chapter-level to qualify as originating. An example of a process meeting a CTC rule is turning raw wood into wooden furniture.
  - b. **CTH** – Change in heading: A product must change its HS code at the 4-digit level or heading level after processing. An example of qualifying action is turning cotton yarn into fabric.

- c. **CTS** – Change in subheading: A product must undergo a change at the HS 6-digit subheading level. An example may be converting copper rods into copper wires.
- d. **CTI** – Change in item: A product must undergo a change at the HS 8-digit item level.

The ROO in these instances may also be subject to the following four types of variants—

- i. **O** – the change has to be made from outside a certain chapter, heading or subheading. This would be expressed as CTCO, CTHO, or CTSO.
- ii. **E** – the change cannot be completed from a specific set of chapters, heading, or subheadings. This would be expressed as CTCE, CTHE, CTSE.
- iii. **OE** – In some cases, ROO may require both a change outside a certain chapter or heading and exceptions to chapters, headings or subheadings that can be used. This would be coded as CTCOE, CTHOE, or CTSOE.
- iv. **S** – The change has to be made from one or several specific chapters, headings, or subheadings. This would be coded as CTCS, CTHS, or CTSS.

- III. **RVC** – Regional value content: A percentage of the final product’s value must come from within the PTA region. RVC is most commonly calculated at a monetary value, but also in some cases as value of labor or in terms of weight (such as in tobacco products in the Pacific Alliance) or volume (such as for certain fuels in USMCA).

There are several different ways to express RVC, such as the build-down method that subtracts the cost of non-originating materials from the value of the product, and the build-up method that adds up the costs of originating materials (table 2.1). Regional value can also be calculated on the basis of the transaction value method (similar to build-down and calculates RVC based on the sales price of the product minus the value of non-originating materials) or through the net cost method (which calculates the cost incurred by the producer to produce the good, excluding certain costs such as sales promotion, marketing, after-sales service, royalties, and packing for shipment). The trader can typically choose between the build-up and build-down methods. Still another method is the focused value method (used especially in the CPTPP) which places a ceiling on non-originating materials. This typically also includes a specific heading where the focused method applies (such as “focused value method taking into account only the non-originating materials of heading 43.04”).

- IV. **TECH** – The ROO may require a technical process, such as ensuring fish is smoked. This requirement can also be used in tandem with change in heading or RVC.

There are also other infrequent ROO that can be used in combination with a change in tariff classification or RVC, or independently:

- a. **LOCAL** – ROO that requires certain local works to be completed in a party’s territory, such as a change in chapter being complemented by a requirement that

a textile product “is cut or knit to shape, or both, and sewn or otherwise assembled in the territory of one or more of the Parties.”

- b. **MWO** – Some materials may have to be wholly originating. This ROO is used for example in products such as wheat gluten to add to a change in tariff classification or RVC requirement.

**Table 2.1 Common methods to calculate regional value content in PTAs**

Method	Key Definition	Formula
<b>Transaction Value Method</b>	Same logic as Build-Down but specifically refers to “Transaction Value” (TV) (sales price minus non-originating inputs).	$RVC = ((TV - VNM) / TV) \times 100$ . TV excludes international shipment costs
<b>Net Cost Method</b>	Deducts value of non-originating materials (VNM) from Net Cost (NC) - excludes selling, marketing, packaging, and other similar costs.	$RVC = ((NC - VNM) / NC) \times 100$
<b>Build-Down Method</b>	Deducts total value of all non-originating materials from good’s value. Also called “Transaction Value Method” if using transaction price.	$RVC = ((\text{Value of Good} - VNM) / \text{Value of Good}) \times 100$
<b>Build-Up Method</b>	Adds value of originating materials (VOM) only; denominator is full value of good.	$RVC = (VOM / \text{Value of Good}) \times 100$
<b>Focused Value Method (FVM)</b>	Deducts only specified non-originating materials (FVNM) defined in product-specific rules.	$RVC = ((\text{Value of Good} - FVNM) / \text{Value of Good}) \times 100$

Many of these ROO can be combined. For example, a ROO may require a change in heading plus an RVC of certain level such as 50 percent – this would be coded as CTHRVC50. In some cases, ROO may define RVC40 with the condition that some materials are wholly obtained – this would be coded as RVC40MWO.

The mapping reveals 209 permutations of ROOs across the nine agreements (table 2.2). In addition, in over a third of the HS 6-digit products, traders can use at least one alternative ROO, such as CTH, RVC40, or TECH. Regional value content of 40 percent (RVC40) is the most common ROO in the ASEAN bilateral agreements (ASEAN-China; ASEAN-Hong Kong, China; ASEAN-Japan; and ASEAN-Korea FTAs).

Mega-regional agreements CPTPP and RCEP are more complex. The CPTPP uses CTC, CTH and CTS as well as optional rules CTC or RVC40, in particular. RCEP makes heavy use of these optional rules as well, especially CTH or RVC40. The Pacific Alliance, built on top of their various bilateral PTAs, relies heavily on CTC, CTH, and CTS.

The USMCA is highly complex, with several exceptions to what the ROO otherwise permits, and alternative ROO a producer can choose from. Some ROO also prohibit the producers from using components from certain headings or subheadings. This potentially indicates that the USMCA ROO that were revised in 2020 from the North American Free Trade Agreements (NAFTA) reflect established, complex production patterns in North America. In other words, USMCA region producers’ existing production methods were likely built into the USMCA’s ROO designs.

The agreements with least heterogeneous ROO are those that use RVC the most: ASEAN-China; ASEAN-Hong Kong, China; ASEAN-Japan, and to an extent, ASEAN-Korea agreements. These bilateral ASEAN agreements can be seen as a “family” and should facilitate ASEAN MSMEs’ diversification across these markets.

**Table 2.2 Distribution of ROO types, mapped agreements**

ROO type	AANZFTA	ASEAN-China	ASEAN-Hong Kong, China	ASEAN-Japan	ASEAN-Korea	CPTPP	Pacific Alliance	RCEP	USMCA
CTC	4.65%	2.85%		16.12%	0.06%	17.66%	25.41%	24.55%	24.27%
CTC or CTH						0.02%			
CTC or CTHE or RVC5545						0.41%			
CTC or COTHERVC55 or RVC70						0.04%			
CTC or COTHERVC6050									0.02%
CTC or CTHE									0.17%
CTC or CTHS4535									0.02%
CTC or CTHS6050									0.39%
CTC or CTHSRV6050									0.45%
CTC or CTHSRVC6050									0.21%
CTC or CTSERVC6050									0.02%
CTC or CTSRVC6050									0.11%
CTC or CTSSRVC4535									0.06%
CTC or CTSSRVC6050									0.84%
CTC or RVC40	11.20%		0.02%	1.95%	4.99%	1.24%			
CTC or RVC40 or TECH						0.15%			
CTC or RVC40LOCAL	3.75%								
CTC or RVC45						0.43%			
CTC or RVC50						0.11%	0.92%		
CTC or RVC50 or TECH							0.02%		
CTC or RVC6050									0.11%
CTC or TECH						0.17%			
CTCE	0.08%			4.20%		6.12%	11.54%	1.48%	8.30%
CTCE or CTS						0.02%			
CTCE or RVC 40	0.77%			0.06%	0.04%	0.04%			
CTCE or RVC45						0.09%			
CTCE or RVC60						0.06%			
CTCE or RVC70 or TECH						0.02%			
CTCELOCAL						5.07%			
CTCET									5.01%
CTCLOCAL	0.96%			3.92%		0.08%			
CTCLOCAL or RVC40	0.04%								
CTCMWO						0.04%			
CTCMWO or RVC40						0.04%			
CTCMWO or RVC40MWO						0.15%			
CTCRVC40						0.04%			
CTCRVC70									
CTCRVC70 or RVC40MWO						0.02%			









## 2.2 MEASURING THE RESTRICTIVENESS OF ROO

The second step in the analysis is to examine the restrictiveness of the various ROO. The restrictiveness scoring methodology used in this study is adapted from the scoring methodology in Estevadeordal and Suominen (2003), which assigns a restrictiveness score to each product-specific ROO so as to enable a systematic evaluation of the relative stringency of ROO and presumed hurdles an exporter needs to “leap” over to ensure the product qualifies for preferential tariff treatment. The scoring system used here ranges from 1 (least restrictive) to 9 (most restrictive), with higher scores indicating more stringent requirements (table 2.3). Each additional requirement, such as CTH plus exception, adds a point.

**Table 2.3 Criteria for scoring ROO by level of restrictiveness**

Score	Code
1	No change required
2	CTI
3	CTS; RVC below 40
4	CTSE (CTS with exception) CTSS (Change from a specific subheading) CTH RVC40 or RVC45
5	CTHE (CTH and exception) CTHLOCAL (CTH and local works) CTHO (CTH outside heading) CTSSLOCAL (change of subheading from a specific subheading plus local work) CTSRVC50 (CTS plus RVC50 or less) CTHRVC40 (CTH plus RVC40 or less) RVC50 or RVC55
6	CTC CTH plus RVC50 CTHELOCAL (CTH with exception and local works) CTHETECH (CTH with exception and TECH) CTHOE (CTH with exception and transformation must occur from outside a heading or chapter) CTHSRVC50 (CTH has to occur from a specific subheading plus RVC50) CTHRVC50, CTHRVC60 (CTH plus RVC50 or 60) CTSSRVC60 or CTSSRVC65 (CTS has to occur from a specific subheading plus RVC 60 or 65)
7	WO (wholly obtained) CTCE (CTC with exception) CTCLOCAL (CTC local works) RVC70 CTCRVC40 or 50 CTCMWO (CTC and local materials to be used)
8	CTCELOCAL (CTC with exception and requirement of local works) CTCTECH (CTC with technical requirements) CTCE (CTC with exceptions) RVC75
9	CTCOE (CTC with exceptions and prohibitions to use certain products outside a certain group) RVC80 or RVC90

When optional rules are available, the restrictiveness calculation is based on the least restrictive ROO option.

The restrictiveness of the ROO can in practice vary a lot across industries: in some industries, it is easy to meet the requirement of a change in chapter rule, while others are not. The same applies to the “wholly obtained” rules – goods like minerals and live animals are inherently “wholly obtained”, unless entirely imported from a third party. The actual restrictiveness of ROO for firms is also shaped by the pre-PTA supply chains. The objective of the index is to abstract away from these industry-specific idiosyncrasies in order to measure how open or closed a PTA is, in terms of allowing the use of extra-regional inputs and products.

The results show that the agreements and sectors vary considerably in the level of restrictiveness. Some agreements such as Pacific Alliance, ASEAN-Japan FTA, CPTPP, and to an extent RCEP have high restrictiveness levels in multiple sectors, particularly in agriculture, food, and beverages; textiles and apparel; and precious metals, stones, and jewelry (table 2.4 and appendix A for chapter-levels scores).

These sectors often require stringent change-in-tariff classification rules (CTC or CTH) combined with high RVC thresholds or WO requirements, potentially reflecting lobbying by import-competing industries. The ROO in the agriculture, food, and beverages sector (HS chapters 1-24) are among the more restrictive across agreements, with an average score ranging from 4.6 to 6.6. The average score for textiles and apparel (HS chapters 50-63) ranges from 4.0 to 7.0, while that for precious metals, stones, and jewelry (HS chapter 71) is between 3.8 and 5.4. The most restrictive chapters also have the highest incidence of “peak ROO” (table 2.5), or ROO with restrictiveness values of 6 or more (table 2.4).

In contrast, the ASEAN agreements with simpler ROO regimes, such as AANZFTA, ASEAN-Hong Kong, China FTA (AHKFTA), and ASEAN-China FTA (ACFTA) have relatively low levels of restrictiveness. Most sectors in these agreements, such as machinery and mechanical equipment; pharmaceuticals and medical equipment; chemicals and allied products; as well as metals and metal products, have restrictiveness scores ranging as low as 3.5 to 4.1. ROO are especially liberal in chemicals and allied products (3.5-4.0), machinery and mechanical equipment (3.6-4.0), and pharmaceuticals and medical equipment (3.5-4.0), possibly indicating the importance of global supply relationships for regional producers in these industries, and/or lack of intra-regional supply of inputs in certain industries.

**Table 2.4 ROO restrictiveness at subheading level, averages by sector**

Chapters	Sector	AANZFTA	ASEAN-China	ASEAN-Hong Kong, China	ASEAN-Japan	ASEAN-Korea	CPTPP	Pacific Alliance	RCEP	USMCA	Average
1-24	Agriculture, food, and beverages	5.1	4.7	4.6	6.0	6.0	5.7	6.1	5.8	5.9	5.6
25-27	Energy, fuels, and minerals	4.3	4.0	4.2	4.0	4.0	3.9	5.3	4.1	5.0	4.3
28-29, 31-40	Chemicals and allied products	3.5	4.0	4.0	4.0	4.0	3.4	3.7	3.9	3.5	3.8
30, 90	Pharmaceuticals and medical equipment	3.5	4.0	4.0	4.0	4.0	3.4	4.2	3.6	3.8	3.8
41-43, 64-67	Footwear, leather, and related products	4.0	4.0	4.0	5.6	4.0	4.8	4.8	4.0	5.8	4.6
44-49	Wood, paper, and printed materials	4.0	4.0	4.0	4.1	4.0	4.1	5.2	4.0	5.0	4.3
50-63	Textiles and apparel	4.9	4.0	4.0	5.4	4.0	6.7	6.2	5.3	7.0	5.3
68-70, 91-92, 95-96	Miscellaneous manufactured goods	4.0	4.0	4.0	4.0	4.0	4.2	4.2	4.0	5.6	4.2
71	Precious metals, stones, and jewelry	4.2	4.0	4.3	4.6	3.8	4.8	5.4	4.2	4.7	4.5
72-83	Metals and metal products	4.1	4.0	4.1	4.0	4.0	4.5	4.4	3.9	5.0	4.2
84	Machinery and mechanical equipment	3.6	4.0	4.0	4.0	4.0	3.6	4.0	3.5	4.0	3.9
85	Electrical and electronic equipment	3.9	4.0	4.0	4.0	3.9	3.6	4.1	3.5	3.8	3.9
86-89	Transport and automotive equipment	4.0	4.0	4.0	4.0	4.0	3.7	4.3	4.0	5.0	4.1
93	Arms and ammunition	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.9	4.2
94	Furniture and home goods	4.0	4.0	4.0	3.7	4.2	4.0	4.3	4.0	4.9	4.1
97	Arts, antiques, and collectibles	4.0	4.0	4.0	4.0	4.0	4.0	6.0	4.0	6.0	4.4
	<i>Average</i>	<i>4.1</i>	<i>4.0</i>	<i>4.1</i>	<i>4.3</i>	<i>4.2</i>	<i>4.3</i>	<i>4.8</i>	<i>4.1</i>	<i>5.1</i>	<i>4.3</i>

ROO restrictiveness <4.0

ROO restrictiveness 4.0-4.9

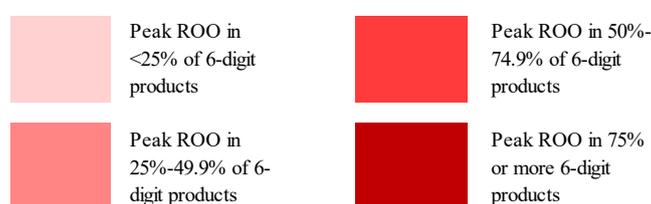
ROO restrictiveness 5.0-5.9

ROO restrictiveness 6.0 or higher

**Table 2.5 Incidence of peak ROO at the subheading level, averages by sector**

Chapters	Sector	AANZ FTA	ASEAN -China	ASEAN-Hong Kong, China	ASEAN-Japan	ASEAN-Korea	CPTPP	Pacific Alliance	RCEP	USMCA	Average
1-24	Agriculture, food, and beverages	43.27%	28.92%	19.91%	90.55%	66.50%	83.54%	97.00%	79.31%	90.77%	66.64%
25-27	Energy, fuels, and minerals	10.14%	0.00%	8.11%	0.68%	0.00%	0.00%	70.27%	5.41%	50.68%	16.14%
28-29, 31-40	Chemicals and allied products	1.84%	0.00%	0.00%	0.48%	0.30%	0.00%	10.36%	1.36%	8.62%	2.55%
30, 90	Pharmaceuticals and medical equipment	0.40%	0.00%	0.00%	0.40%	0.00%	0.40%	6.32%	0.40%	23.72%	3.51%
41-43, 64-67	Footwear, leather, and related products	0.00%	0.00%	0.00%	81.90%	0.86%	31.03%	31.03%	0.00%	62.07%	22.99%
44-49	Wood, paper, and printed materials	0.00%	0.00%	0.00%	2.29%	0.00%	2.67%	49.24%	1.53%	40.08%	10.64%
50-63	Textiles and apparel	29.02%	0.00%	0.62%	45.08%	0.24%	71.98%	64.26%	64.26%	94.77%	41.14%
68-70, 91-92, 95-96	Miscellaneous manufactured goods	0.00%	0.00%	0.00%	1.35%	0.00%	13.51%	13.96%	0.00%	79.28%	12.01%
71	Precious metals, stones, and jewelry	11.32%	0.00%	11.32%	30.19%	0.00%	45.28%	71.70%	13.21%	35.85%	24.32%
72-83	Metals and metal products	4.44%	0.00%	3.20%	0.00%	0.00%	21.31%	11.90%	0.00%	32.33%	8.13%
84	Machinery and mechanical equipment	0.00%	0.00%	0.00%	0.00%	0.00%	0.99%	1.97%	0.00%	2.17%	0.57%
85	Electrical and electronic equipment	0.38%	0.00%	0.38%	0.00%	0.00%	0.38%	1.15%	0.38%	5.73%	0.93%
86-89	Transport and automotive equipment	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	20.71%	0.00%	38.57%	6.59%
93	Arms and ammunition	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	94.44%	10.49%
94	Furniture and home goods	0.00%	0.00%	0.00%	9.52%	9.52%	0.00%	14.29%	0.00%	19.05%	5.82%
97	Arts, antiques, and collectibles	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	100.00%	22.22%
	<b>Average</b>	<b>6.3%</b>	<b>1.8%</b>	<b>2.7%</b>	<b>16.4%</b>	<b>4.8%</b>	<b>16.9%</b>	<b>35.3%</b>	<b>10.4%</b>	<b>48.6%</b>	<b>15.9%</b>

Note: the percentage is the share of 6-digit products with a ROO restrictiveness score of 6 or above in the respective sector.



### 2.3 REGIME-WIDE ROO AND THEIR ASSOCIATED PROCEDURES

In each PTA, “regime-wide” ROO and their associated procedures were also mapped. These are detailed in the ROO chapters, which apply to all sectors similarly, and include such provisions as *de minimis*, cumulation, roll-up, duty drawback, and electronic certification of

origin. The regime-wide ROO and their associated procedures can help reduce exporters' compliance costs and expand sourcing options. For example (table 2.6):

- **A *de minimis* rule** enables exporters to use a certain amount of non-qualifying content and still qualify for tariff preferences. Most of the studied PTAs have a *de minimis* provision, typically set at 10 percent.
- **Cumulation** can enable production among multiple PTA members and even with a larger group of economies than the PTA members. For example, Pacific Alliance allows for cumulation among its member economies and, additionally with Singapore via the framework of the Pacific Alliance and Singapore FTA (PASFTA). CPTPP also allows for cumulation across its membership. RCEP in principle allows for cumulation, but its cumulation provision is reportedly very difficult to use due to the tariff differentials and the incomplete status of the cumulation provisions (Crivelli et al., 2023).
- **The roll-up or absorption principle** allows materials to acquire origin by meeting specific processing requirements when they are used as input in a subsequent transformation. When roll-up is allowed, non-originating materials are not included in the calculation of the value added of a subsequent transformation. For example, the CPTPP states that “Each Party shall provide that if a non-originating material undergoes further production such that it satisfies the requirements of this Chapter, the material is treated as originating when determining the originating status of the subsequently produced good, regardless of whether that material was produced by the producer of the good.”
- **Duty drawback** refers to a refund of import duties paid on inputs or raw materials used to produce exported goods. In a PTA, a duty drawback rule regulates whether duties paid on imported non-originating materials (inputs from outside the PTA bloc) can be refunded when the final good is exported under PTA preferences. For example, USMCA states that “Upon request from an importer in its territory, or an exporter or producer in the territory of another Party, a Party shall, within a reasonable timeframe, provide advice or information relevant to the facts contained in the request on the application of duty drawback or duty deferral programs that reduce, refund, or waive customs duties.” The CPTPP has similar language.
- **Electronic certification and trader self-certification of origin** also ease compliance with the ROO regime and their associated procedures, reducing steps, paperwork, and administrative costs. Indeed, requiring a firm to obtain a certification documentation from the government or certification body may dissuade the firm from seeking to qualify for the PTA preference (WTO 2022). The Pacific Alliance stipulates that parties accept the electronic certificate. The PASFTA allows trader self-certification. In RCEP, the certificate can possibly be electronic as the agreement requires the certificate to “be in a format to be determined by the Parties”, and that the “signature and seal [on the certificate] shall be applied manually or electronically.” CPTPP stipulates that a certification may be in electronic format. USMCA also provides that a certification of origin can be completed and submitted electronically, including with an electronic or digital signature. Moreover, trader self-certification by the exporter, producer or importer of the good is the sole certification method allowed under CPTPP and USMCA (though CPTPP affords a transition period towards trader self-certification for some

Parties that require additional time to adopt this approach). The second protocol of AANZFTA also allows self-certification.

- **Waivers from providing an origin certificate for goods** up to a certain value add flexibility for small shipments, postal shipments, and samples. AANZFTA, ACFTA, AHKFTA, ASEAN-Japan FTA, CPTPP, Pacific Alliance, RCEP and USMCA have such a waiver.

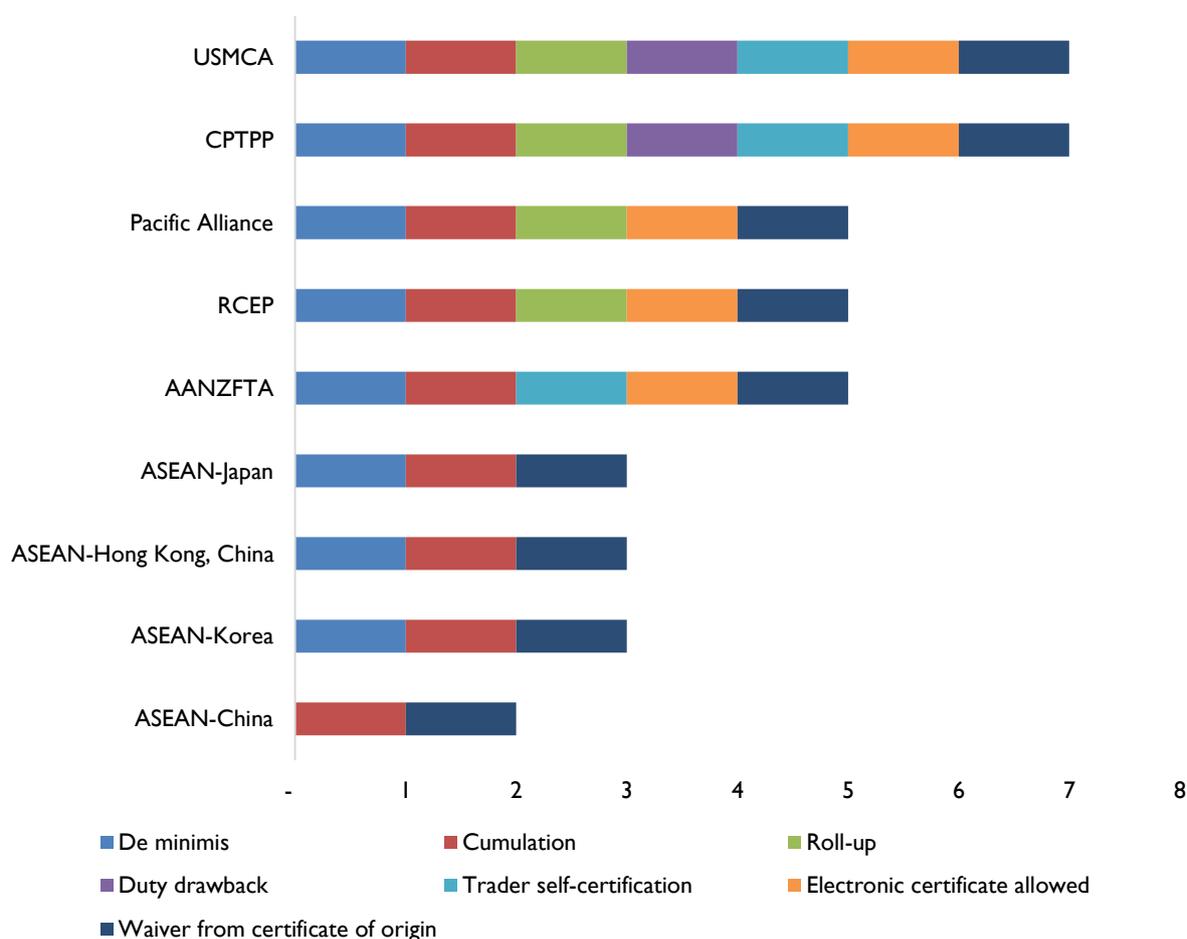
This data can be brought together into a Facilitation Index of ROO and their associated procedures that assigns 1 for PTAs that include one of the above seven types of provision, 0.5 for PTAs that partially include it, and zero if a PTA does not contain any of such provision. Among the nine agreements, CPTPP and the USMCA stand out with higher scores (figure 2.1). They both allow for all of *de minimis*, cumulation, duty drawback, roll-up, trader self-certification of origin, electronic certificate, and a waiver from the certificate of origin for shipments not exceeding USD 1,000. However, these same agreements have rather high restrictiveness scores for product-specific ROO in certain sectors, highlighting the balance between reducing administrative burdens through facilitative measures and maintaining protective sector-specific rules.

Whilst the number of PTAs analyzed in this report is limited to draw definite conclusions on the relationship between regime-wide ROO and PTA utilization, relevant research has found that permissive regime-wide ROO can promote trade and PTA utilization.<sup>4</sup> Furthermore, Estevadeordal et al. (2007) and Hayakawa (2014) have found that diagonal cumulation across PTAs promotes utilization.

**Table 2.6 Regime-wide ROO and their associated procedures in the nine agreements**

	AANZFTA	ASEAN-China	ASEAN-Hong Kong, China	ASEAN-Japan	ASEAN-Korea	CPTPP	Pacific Alliance	RCEP	USMCA
<b>De minimis</b>	10%	N/A	10%	7%-10% depending on the chapter	10%	10%	10%	10%	10%
<b>Cumulation</b>	Yes	Yes	Yes	Yes	Yes	Yes	Yes (also with Singapore in PASFTA)	Yes	Yes
<b>Roll-up</b>	N/A	N/A	N/A	N/A	N/A	Yes	Yes	Yes	Yes
<b>Duty drawback</b>	N/A	N/A	N/A	N/A	N/A	Yes	N/A	N/A	Yes
<b>Trader self-certification</b>	Yes (under second AANZFTA Protocol)	No	No	No	No	Yes	No (but allows in PASFTA with Singapore)	No	Yes
<b>Electronic certificate allowed</b>	Yes	N/A	No	N/A	N/A	Yes	Yes	Yes	Yes
<b>Waiver from certificate of origin</b>	Not exceeding USD 200	Not exceeding USD 200	Not exceeding USD 200	Not exceeding USD 200	Not exceeding USD 200	Not exceeding USD 1,000 or waived good	Not exceeding USD 1,000 or waived good	Not exceeding USD 200	Not exceeding USD 1,000 or waived good

**Figure 2.1 Facilitation index, regime-wide ROO and their associated procedures in nine PTAs**



## 2.4 DIVERGENCE ACROSS PRODUCT-SPECIFIC ROO

The analysis has so far revealed considerable diversity across the nine PTAs' ROO regimes in ROO types and restrictiveness, but also surfaced a ROO family centered around ASEAN agreements with East Asian partners. For exporters that trade across multiple markets and seek to enter the markets under different PTAs, such ROO families should in principle be beneficial, as meeting ROO in one PTA would then enable the exporter to automatically meet the ROO in another PTA.

In contrast, when ROOs are highly divergent across PTAs, exporters may need to tailor their supply chains and production methods differently for each PTA. This, in turn, can create high compliance costs and may discourage firms from using multiple PTAs. Such complexity may be particularly challenging for MSMEs. With their limited compliance capabilities in meeting divergent ROO requirements across export markets, MSMEs may choose to "specialize" in one agreement and market instead of diversifying their export markets.

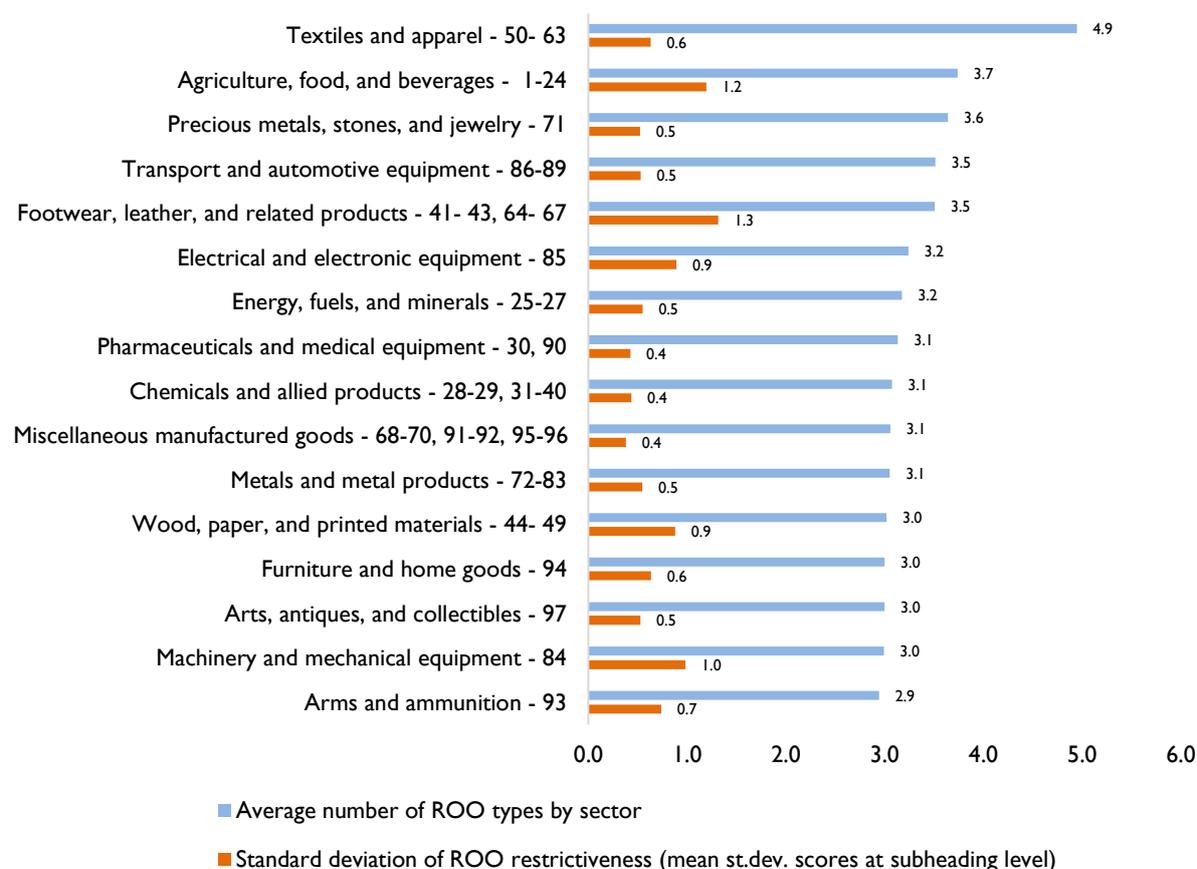
How to then measure divergence of product-specific ROO across PTAs? This study explores divergence in two ways:

- By examining differences among the ROO at HS 6-digit level as the ROO are written per the qualitative mapping (for example, a change in sub-heading in one PTA and regional value content of 30 percent in another PTA for a given HS 6-digit ROO would be “fully divergent”). The divergence measure is a count of ROO types per product category at HS 6-digit level.
- By analyzing differences in the restrictiveness scores of any product-specific ROO across the various PTAs (for example, restrictiveness score of 3 for a product-specific ROO in one PTA and 7 in another PTA would entail high divergence, while scores of 5 and 6 for example would entail low divergence). The divergence here is measured as standard deviation across the nine agreements.

Results of the above two assessments correlate heavily. Sectors with subheadings with highly divergent ROO across the nine agreements include textiles and apparel; agriculture, food and beverages; precious metals, stones, and jewelry; and footwear, leather, and related products. All these chapters have high incidence at least in some agreements of “peak ROO” with restrictiveness scores of 6 or more.

Product categories with high divergence include aircraft and aerospace parts (HS 880390), with ROO criteria ranging from CTH or RVC50, RVC40, and CTH or RVC40 across agreements. Further products with high divergence include energy and fuels (HS 271111-271114). The divergence may reflect diverse domestic energy security policies and energy production capabilities. When measured on the basis of restrictiveness of ROO, divergence is high in footwear, leather and related products (Chapters 41-43, 64-47); agriculture, food and beverages (Chapters 1-24); and machinery and mechanical equipment (Chapter 84) (figure 2.2). One explanation is that RCEP and the Pacific Alliance have stringent ROO in these sectors, while CPTPP and AANZFTA are somewhat more liberal.

**Figure 2.2 ROO divergence in the nine agreements, counts of different ROO types and standard deviation in ROO restrictiveness score, by sector (chapters in parentheses)**



For exporters, this divergence may not be as important as that in the specific ROO across the PTAs in an economy. For example, the Philippines qualifies for RCEP and ASEAN agreements, while Singapore and Viet Nam qualify for RCEP, ASEAN agreements, and the CPTPP; Japan qualifies for the CPTPP, RCEP and ASEAN-Japan agreements; and Mexico qualifies for the CPTPP, Pacific Alliance and USMCA. Hong Kong, China; and the United States qualify for only one of the nine agreements (AHKFTA and USMCA respectively), and thus have no divergence in the PTAs included in this study. Papua New Guinea; Russia; and Chinese Taipei are not included because they are not parties to any of the nine agreements.

Customizing the divergence scores to each APEC economy for their respective PTAs reveals high divergence across PTAs in sectors like agriculture, food, and beverages; textiles and apparel; precious metals, stones, and jewelry; and footwear, leather, and related products (table 2.7). However, it should also be kept in mind that *the analyzed agreements do not represent the entire universe of agreements for many of the APEC Members*. In fact, most of the APEC Members are parties to multiple other PTAs and such may add to the diversity of ROO faced by exporters in the various economies.

The sectors with the highest average standard deviation, indicating significant divergence or variation in ROO rules across APEC Members, are agriculture, food, and beverages (0.9); textiles and apparel (0.8); precious metals, stones, and jewelry (0.7); and footwear, leather, and

related products (0.6). These industries have complex ROO requirements in some but not all agreements, creating a high divergence.

The sectors with the lowest average standard deviation, indicating greater convergence of ROO rules across APEC Members, are arts, antiques, and collectibles (0.0 divergence); arms and ammunition (0.1), transport and automotive equipment (0.1); miscellaneous manufactured goods (0.2); and wood, paper, and printed materials (0.2). Although arts, antiques, and collectibles has the lowest average standard deviation, it has very high divergence of 1.4 for Chile; Mexico; and Peru, due to restrictive ROO in the Pacific Alliance in this sector.

**Table 2.7 ROO divergence by sector for APEC Members in their respective PTAs (based on the nine selected PTAs) (standard deviation of restrictiveness scores in each members' respective agreements)**

Chapters	Sector	AUS	BD	CDA	CHL	PRC	INA	JPN	ROK	MAS	MEX	NZ	PE	PH	SGP	THA	VN	Avg.
1-24	Agriculture, food, and beverages	0.9	1.2	0.4	0.4	0.6	1.3	0.6	1.2	1.2	0.4	0.9	0.4	1.3	1.2	1.3	1.2	0.9
25-27	Energy, fuels, and minerals	0.3	0.2	0.8	1.1	0.2	0.2	0.1	0.1	0.2	0.8	0.3	1.1	0.2	0.2	0.2	0.2	0.4
28-29, 31-40	Chemicals and allied products	0.4	0.4	0.2	0.3	0.5	0.3	0.4	0.1	0.4	0.2	0.4	0.3	0.3	0.4	0.3	0.4	0.3
30, 90	Pharmaceuticals and medical equipment	0.4	0.4	0.3	0.6	0.4	0.3	0.4	0.3	0.4	0.3	0.4	0.6	0.3	0.4	0.3	0.4	0.4
41-43, 64-67	Footwear, leather, and related products	0.5	0.7	0.8	0.2	0.0	0.7	1.0	0.0	0.7	0.8	0.5	0.2	0.7	0.7	0.7	0.7	0.6
44-49	Wood, paper, and printed materials	0.1	0.1	0.6	0.8	0.0	0.1	0.1	0.0	0.1	0.6	0.1	0.8	0.1	0.1	0.1	0.1	0.2
50-63	Textiles and apparel	1.0	1.2	0.3	0.5	0.6	0.8	1.1	0.9	1.2	0.3	1.0	0.5	0.8	1.2	0.8	1.2	0.8
68-70, 91-92, 95-96	Miscellaneous manufactured goods	0.2	0.1	1.0	0.1	0.0	0.0	0.2	0.0	0.1	1.0	0.2	0.1	0.0	0.1	0.0	0.1	0.2
71	Precious metals, stones, and jewelry	0.6	0.8	1.1	0.4	0.3	0.5	0.9	0.5	0.8	1.1	0.6	0.4	0.5	0.8	0.5	0.8	0.7
72-83	Metals and metal products	0.5	0.3	0.3	0.3	0.1	0.1	0.4	0.1	0.3	0.3	0.5	0.3	0.1	0.3	0.1	0.3	0.3
84	Machinery and mechanical equipment	0.1	0.3	0.5	0.3	0.3	0.3	0.3	0.3	0.3	0.5	0.1	0.3	0.3	0.3	0.3	0.3	0.3
85	Electrical and electronic equipment	0.3	0.3	0.5	0.5	0.1	0.3	0.4	0.3	0.3	0.5	0.3	0.5	0.3	0.3	0.3	0.3	0.3
86-89	Transport and automotive equipment	0.2	0.1	1.0	0.4	0	0.0	0.2	0.0	0.1	1.0	0.2	0.4	0.0	0.1	0.0	0.1	0.1
93	Arms and ammunition	0	0	1.3	0	0	0	0	0	0	1.3	0	0	0	0	0	0	0.1
94	Furniture and home goods	0	0.4	0.7	0.2	0	0.4	0.4	0.1	0.4	0.7	0	0.2	0.4	0.4	0.4	0.4	0.4
97	Arts, antiques, and collectibles	0	0	1.4	1.4	0	0	0	0	0	1.4	0	1.4	0	0	0	0	0
	<b>Average</b>	0.35	0.41	0.71	0.47	0.2	0.33	0.41	0.25	0.41	0.71	0.35	0.47	0.33	0.41	0.33	0.41	0.4

 Divergence <0.3

 Divergence 0.7-1.0

 Divergence 0.3-0.7

 Divergence >1.0

## 2.5 RESULTS IN SUM

The above discussion has reached the following main conclusions:

- The categorization of product-specific ROO across nine PTAs in the APEC region at the HS 6-digit level reveals four main ROO types, including wholly obtained, change in tariff classification, regional value content, and technical processes, and several variants to these staple ROO. ASEAN-based agreements rely more on RVC40, while the CPTPP and RCEP feature a mix of CTC, CTH, and RVC40. The USMCA has the most complex ROO, often incorporating exceptions that align with North America's established production patterns.
- This study indicates that the various ASEAN PTAs have ROO that are similar to each other, which should help traders meet ROO across various ASEAN agreements. In general, convergence in product-specific ROO within certain PTAs could facilitate firms to integrate production processes with PTA partner economies and comply with origin requirements.
- Using a restrictiveness scoring methodology (from 1 to 9), the Pacific Alliance, ASEAN-Japan FTA, CPTPP, and to an extent RCEP have higher restrictiveness levels in sectors such as agriculture, food, and beverages; textiles and apparel; and precious metals, stones, and jewelry. AANZFTA, AHKFTA and ACFTA have lower restrictiveness, especially in sectors like machinery and mechanical equipment; pharmaceuticals and medical equipment; and chemicals and allied products.
- CPTPP and USMCA have many positive regime-wide ROO and their associated procedures that can alleviate the challenges for exporters to meet the product-specific ROO, such as *de minimis*, cumulation of origin, and trader self-certification.

The following section will relate the restrictiveness and divergence in ROO and their associated procedures to utilization of PTAs. Due to limited availability of data, this section only includes information of utilization of PTAs by Australia and Japan respectively.

### 3. ANALYZING THE IMPACT OF ROO AND THEIR ASSOCIATED PROCEDURES' RESTRICTIVENESS AND DIVERGENCE ON MSMEs' UTILIZATION OF PTAS

The purpose of this section is to understand how restrictiveness and divergence of ROO and their associated procedures across PTAs affect MSMEs' PTA utilization in general, and MSMEs' utilization of PTAs in the APEC region, in particular. The section leverages preference utilization data from Australian PTAs and Japan PTAs, as well as surveys with 410 MSMEs in ASEAN region. This section will also discuss the challenges governments face in administering complex ROO regimes.

Some of the hypotheses explored in this section include:

- When product-specific ROO are the same or similar across an economy's PTAs, utilization of all these PTAs will be higher and exporters will be more diversified across the various PTA markets because the convergence in ROO enables exporters to use the same production method to qualify for preferences across multiple PTAs.<sup>5</sup> Conversely, when ROO are widely different across PTAs, exporters may favor the export market with the least restrictive ROO, *ceteris paribus*.
- Exporters of products with high preference margins could be expected to seek to use PTAs more than those with no or limited preference margins, even in the presence of restrictive ROO. Conversely, when preference margins are narrow, traders may opt for the more liberalized MFN channel as it may no longer be cost-effective to deal with preferential ROO. This is particularly so for products with zero MFN rates.
- PTAs and products with stringent product-specific ROO have lower utilization of PTA preferences than PTAs that have more flexible ROO, as exporters in the former case may forego using PTA preferences and trade on an MFN-basis instead.<sup>6</sup> Each business analyzes the benefits of accessing PTA preferences against the costs of meeting the PTA's ROO.
- Regime-wide ROO and their associated procedures such as trader self-certification of origin or cumulation can promote MSMEs' use of PTAs even in the presence of stringent ROO.
- Firms may not be utilizing newer mega-regional PTAs like RCEP as intensively as they might utilize older PTAs with fewer parties due to inflexible cumulation rules in the former.

#### 3.1 PREFERENCE UTILIZATION IN AUSTRALIA'S PTAS WITH APEC MEMBERS

The first step to exploring these hypotheses is to access preference utilization rates (imports that enter under PTA preferences over total imports from economy A to economy B in a given product) into Australia, using Australian Customs' database for 2016-2023 that maps import values on a monthly basis at HS 8-digit level from all its trading partners, including which preferential scheme those goods entered under and what the MFN and applied duties are for

any one category. We leverage a similar dataset on preferential shipments into Japan by Japanese customs.<sup>7</sup>

Assessing the Australian data, in 2023, APEC Members used their respective PTAs with Australia in numerous product categories. The most avid users were China, which used 2,453 HS 6-digit codes for preferences under the China-Australia Free Trade Agreement (FTA), and the United States which used 2,019 HS 6-digit codes under the Australia-United States FTA (table 3.1). Viet Nam and Indonesia were the most avid users of AANZFTA, while Canada; Japan; Mexico; and Viet Nam are the more frequent users of the CPTPP. RCEP was used by China, but to a limited extent compared to its FTA with Australia.

**Table 3.1 Number of HS 6-digit subheadings used for entering into Australia under preferential schemes, by APEC Member in 2023**

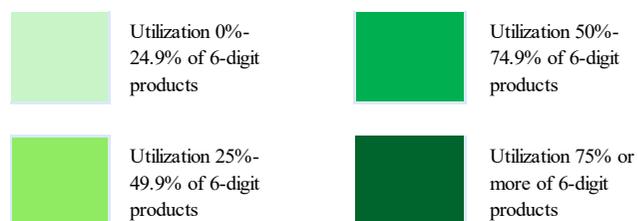
Origin	Bilateral FTA	AANZFTA	CPTPP	RCEP
Canada	N/A	N/A	697	N/A
Chile	N/A	N/A	4	N/A
China	2,453	N/A	N/A	353
Hong Kong, China	81	N/A	N/A	N/A
Indonesia	150	899	N/A	13
Japan	1,118	N/A	186	45
Korea	1,172	N/A	N/A	28
Malaysia	370	677	79	14
Mexico	N/A	N/A	195	N/A
New Zealand	1,205	N/A	63	13
Peru	127	N/A	24	N/A
The Philippines	N/A	362	N/A	1
Singapore	N/A	199	65	21
Thailand	N/A	416	N/A	14
United States	2,019	N/A	N/A	N/A
Viet Nam	N/A	921	297	62

Note: Trivial values for shipments from non-APEC members using PTAs removed.

Preference utilization rates can be analyzed in two ways: by each PTA and by each economy in its respective PTAs with Australia. By using the first method for 2023, for AANZFTA, it is found that among the ASEAN economies in APEC, Indonesia and Viet Nam's average utilization is 40 percent, with notable variation across sectors (for instance, traders use AANZFTA for furniture and home goods frequently, but rarely for pharmaceuticals and the medical equipment sector) (table 3.2). China-Australia FTA also has strong utilization at 47 percent, as with Korea in its PTA with Australia (at 40 percent). Meanwhile, the utilization of the mega-regional agreements CPTPP and RCEP was limited, respectively at 4 percent and 0.4 percent on average.

**Table 3.2 Average utilization rates, by agreement and sector in Australian PTAs in 2023**

	INA in AANZFTA	MAS in AANZFTA	PH in AANZFTA	SGP in AANZFTA	THA in AANZFTA	VN in AANZFTA	AUS-HKC FTA	PRC-AUS FTA	AUS-NZ CER	CPTPP	AUS-US FTA	MAS-AUS FTA	INA-AUS (IA-CEPA)	JPN-AUS (JAEPA)	KOR-AUS FTA (KAFTA)	PE-AUS FTA (PAFA)	RCEP
Agriculture, food, and beverages	30%	24%	45%	68%	3%	15%	13%	46%	51%	7%	49%	9%	1%	31%	57%	12%	0.3%
Energy, fuels, and minerals	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0.0%
Chemicals and allied products	36%	32%	64%	23%	14%	57%	9%	55%	79%	6%	38%	23%	0%	8%	39%	18%	0.1%
Pharmaceuticals and medical equipment	2%	0%	2%	0%	31%	0%	0%	9%	1%	0%	1%	0%	0%	4%	1%	0%	0.4%
Footwear, leather, and related products	77%	68%	64%	48%	35%	79%	4%	81%	86%	3%	52%	19%	8%	56%	41%	0%	0.3%
Wood, paper, and printed materials	88%	27%	41%	1%	36%	86%	0%	72%	44%	3%	34%	0%	0%	5%	25%	37%	0.0%
Textiles and apparel	63%	21%	40%	5%	11%	76%	2%	89%	87%	8%	54%	27%	25%	49%	53%	52%	0.1%
Miscellaneous manufactured goods	60%	50%	24%	40%	23%	43%	0%	58%	63%	6%	48%	8%	2%	33%	51%	28%	4%
Precious metals, stones, and jewelry	32%	12%	0%	2%	5%	64%	5%	51%	4%	2%	12%	86%	0%	25%	0%	0%	0.1%
Metals and metal products	66%	49%	20%	23%	2%	69%	3%	82%	73%	4%	48%	10%	0%	36%	38%	2%	0.0%
Machinery and mechanical equipment	30%	18%	6%	0%	8%	17%	1%	36%	63%	3%	28%	2%	3%	18%	34%	27%	1%
Electrical and electronic equipment	44%	4%	26%	5%	1%	3%	0%	19%	43%	1%	11%	1%	0%	6%	49%	0%	1%
Transport and automotive equipment	19%	25%	44%	0%	45%	47%	0%	59%	56%	8%	43%	22%	22%	93%	90%	0%	0.2%
Arms and ammunition	0%	0%	0%	0%	0%	0%	0%	8%	89%	5%	11%	0%	0%	5%	76%	0%	0.0%
Furniture and home goods	88%	45%	58%	24%	4%	86%	0%	89%	85%	10%	45%	44%	8%	43%	80%	100%	0.1%
Arts, antiques, and collectibles	0%	0%	0%	0%	0%	0%	6%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0.0%
<b>Average at sector level</b>	40%	24%	27%	15%	14%	40%	3%	47%	52%	4%	30%	16%	4%	26%	40%	17%	0.42%



Another way to assess utilization is by each economy in its PTA with Australia.

The average utilization rates of trade agreements with Australia by APEC Members vary widely (table 3.3). High-utilization sectors include sectors where preference margins are typically more elevated - transport and automotive equipment; textiles and apparel; footwear, leather, and related products; and miscellaneous manufactured goods. There is relatively lower utilization in sectors like energy, fuels, and minerals; arts, antiques, and collectibles; pharmaceuticals and medical equipment; and electrical and electronic equipment.

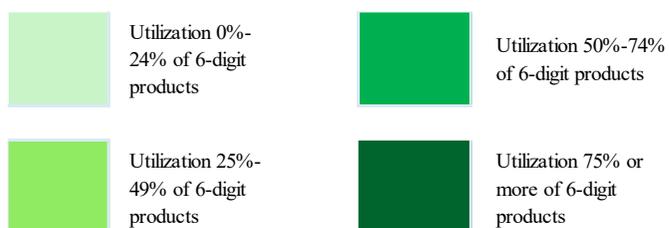
The utilization of trade agreements varies significantly by agreement type. Indonesia and Viet Nam use AANZFTA the most, with average sectoral utilization at 40 percent each. The CPTPP has highly variable utilization rates among economies, with Canada and Mexico showing relatively high usage, while Malaysia and Viet Nam having low utilization, indicating preference for AANZFTA. Textiles and apparel; furniture and home goods, and transport and automotive products are among the categories most frequently utilized under the CPTPP, although at low levels.

Overall, ASEAN's regional agreements help ASEAN economies access the Australian market, while bilateral agreements are the main channel for China and the United States to enter Australia.

The same exercise can be done with Japanese trade data, which details preference utilization by agreement and by economy. Data for the utilization of Japan's trade agreements by the various APEC Members in 2023 indicates that the bilateral Economic Partnership Agreements with Indonesia; Malaysia; Peru; the Philippines; and Thailand are quite well-utilized (table 3.4). CPTPP and RCEP utilization rates are however low. Utilization of Japanese PTAs is overall higher in sectors where Japan's MFN tariff is relatively high and preference margin significant, such as agricultural products that have an average tariff rate of 15.5 percent.<sup>8</sup> In contrast, utilization is low in the machinery and mechanical equipment as well as transport equipment sectors where Japan's MFN rates are also very low. For example, Japan's MFN rate of non-electrical machinery and transport equipment is zero, while that of electrical machinery is 0.2 percent.<sup>9</sup>

**Table 3.3 Average utilization rates in agreements with Australia in 2023, by APEC Member**

	Canada	Chile	China		Hong Kong, China	Indonesia			Japan			Korea	
	CPTPP	CPTPP	Bilateral	RCEP	Bilateral	AANZFTA	Bilateral	RCEP	Bilateral	CPTPP	RCEP	Bilateral	RCEP
Agriculture, food, and beverages	17%	0%	46%	0%	13%	30%	1%	0%	31%	16%	0%	57%	0%
Energy, fuels, and minerals	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Chemicals and allied products	22%	1%	55%	0%	9%	36%	0%	0%	8%	0%	0%	39%	0%
Pharmaceuticals and medical equipment	2%	0%	9%	4%	0%	2%	0%	0%	4%	0%	0%	1%	0%
Footwear, leather, and related products	23%	0%	81%	0%	4%	77%	8%	0%	56%	0%	0%	41%	0%
Wood, paper, and printed materials	16%	0%	72%	0%	0%	88%	0%	0%	5%	0%	0%	25%	0%
Textiles and apparel	49%	0%	89%	0%	2%	63%	25%	0%	49%	5%	0%	53%	0%
Miscellaneous manufactured goods	24%	0%	58%	0%	0%	60%	2%	0%	33%	1%	0%	51%	2%
Precious metals, stones, and jewelry	1%	0%	51%	0%	5%	32%	0%	0%	25%	0%	0%	0%	0%
Metals and metal products	21%	0%	82%	0%	3%	66%	0%	0%	36%	0%	0%	38%	0%
Machinery and mechanical equipment	23%	0%	36%	1%	1%	30%	3%	0%	18%	0%	0%	34%	0%
Electrical and electronic equipment	8%	0%	19%	2%	0%	44%	0%	0%	6%	0%	0%	49%	2%
Transport and automotive equipment	7%	0%	59%	0%	0%	19%	22%	1%	93%	0%	0%	90%	0%
Arms and ammunition	45%	0%	8%	0%	0%	0%	0%	0%	5%	0%	0%	76%	0%
Furniture and home goods	62%	0%	89%	0%	0%	88%	8%	0%	43%	1%	0%	80%	0%
Arts, antiques, and collectibles	0%	0%	0%	0%	6%	0%	0%	0%	0%	0%	0%	0%	0%
<b>Average at sector-level</b>	<b>20%</b>	<b>0%</b>	<b>47%</b>	<b>0%</b>	<b>3%</b>	<b>40%</b>	<b>4%</b>	<b>0%</b>	<b>26%</b>	<b>2%</b>	<b>0%</b>	<b>40%</b>	<b>0%</b>



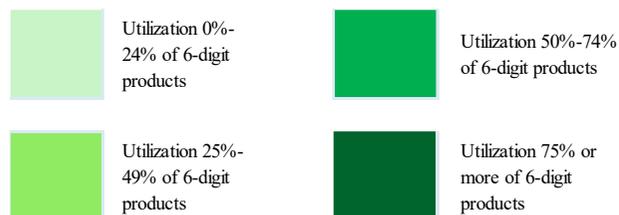
**Table 3.3 Average utilization rates in agreements with Australia in 2023, by APEC Member (cont.)**

	Malaysia				Mexico	New Zealand			Peru		The Philippines		Singapore			Thailand		United States	Viet Nam		
	AANZ FTA	Bilateral	CPTPP	RCEP	CPTPP	Bilateral	CPTPP	RCEP	Bilateral	CPTPP	AANZ FTA	RCEP	AANZ FTA	CPTPP	RCEP	AANZ FTA	RCEP	Bilateral	AANZ FTA	CPTPP	RCEP
Agriculture, food, and beverages	24%	9%	1.4%	0.0%	24%	51%	0.0%	0.0%	12%	3%	45%	0.0%	68%	2%	0.0%	3%	2%	49%	15%	0%	0.0%
Energy, fuels, and minerals	0%	0%	0.0%	0.0%	0%	0%	0.0%	0.0%	0.0%	0.0%	0%	0.0%	0%	0.0%	0.0%	0%	0.0%	0%	0%	0%	0.0%
Chemicals and allied products	32%	23%	0.1%	0.1%	21%	79%	0.9%	0.0%	18%	0.0%	64%	0.0%	23%	2%	0.0%	14%	0.0%	38%	57%	4%	0.2%
Pharmaceuticals and medical equipment	0%	0%	0.2%	0.0%	0%	1%	0.0%	0.0%	0.0%	0.0%	2%	0.0%	0%	0.0%	0.0%	31%	0.0%	1%	0%	1%	0.0%
Footwear, leather, and related products	68%	19%	0.0%	0.0%	1%	86%	0.2%	0.0%	0.0%	0.0%	64%	0.0%	48%	0.0%	2%	35%	0.0%	52%	79%	5%	0.0%
Wood, paper, and printed materials	27%	0%	0.0%	0.0%	11%	44%	0.0%	0.0%	37%	0.0%	41%	0.0%	1%	0.0%	0.0%	36%	0.0%	34%	86%	1%	0.0%
Textiles and apparel	21%	27%	0.8%	0.1%	11%	87%	0.1%	0.0%	52%	0.5%	40%	0.0%	5%	0.0%	0.0%	11%	1%	54%	76%	7%	0.0%
Miscellaneous manufactured goods	50%	8%	0.6%	0.2%	7%	63%	0.2%	0.0%	28%	17%	24%	0.0%	40%	0.1%	32%	23%	0.2%	48%	43%	7%	0.2%
Precious metals, stones, and jewelry	12%	86%	0.0%	0.0%	6%	4%	0.0%	0.0%	0.0%	0.0%	0%	0.0%	2%	9%	0.1%	5%	0.2%	12%	64%	1%	0.0%
Metals and metal products	49%	10%	0.9%	0.0%	5%	73%	0.0%	0.0%	2%	1%	20%	0.0%	23%	1%	0.0%	2%	0.0%	48%	69%	9%	0.1%
Machinery and mechanical equipment	18%	2%	0.5%	0.0%	4%	63%	0.1%	0.0%	27%	2%	6%	0.5%	0.3%	1%	0.0%	8%	0.0%	28%	17%	1%	4%
Electrical and electronic equipment	4%	1%	0.0%	0.0%	0%	43%	0.0%	0.0%	0.0%	0.0%	26%	0.0%	5%	0.0%	0.0%	1%	0.0%	11%	3%	1%	3%
Transport and automotive equipment	25%	22%	0.0%	0.9%	63%	56%	0.1%	0.0%	0.0%	0.0%	44%	0.0%	0%	0.0%	0.0%	45%	0.0%	43%	47%	4%	0.0%
Arms and ammunition	0%	0%	0.0%	0.0%	0%	89%	0.0%	0.0%	0.0%	0.0%	0%	0.0%	0%	0.0%	0.0%	0%	0.0%	11%	0%	0%	0.0%
Furniture and home goods	45%	44%	1.3%	0.0%	11%	85%	0.2%	0.0%	100%	0.0%	58%	0.0%	24%	9.4%	0.0%	4%	0.0%	45%	86%	8%	0.1%
Arts, antiques, and collectibles	0%	0%	0.0%	0.0%	0%	0%	0.0%	0.0%	0%	0.0%	0%	0.0%	0%	0.0%	0.0%	0%	0.0%	0%	0%	0%	0.0%
<b>Average at sector-level</b>	<b>24%</b>	<b>16%</b>	<b>0.4%</b>	<b>0.1%</b>	<b>10%</b>	<b>52%</b>	<b>0.1%</b>	<b>0.0%</b>	<b>17%</b>	<b>1%</b>	<b>27%</b>	<b>0.0%</b>	<b>15%</b>	<b>2%</b>	<b>2%</b>	<b>14%</b>	<b>0.2%</b>	<b>30%</b>	<b>40%</b>	<b>3%</b>	<b>0.5%</b>



**Table 3.4 Average utilization rates of agreements with Japan, by APEC Member**

	ASEAN-JPN	CPTPP	JPN-AUS	JPN-BD	JPN-CHL	JPN-INA	JPN-MAS	JPN-MEX	JPN-PE	JPN-PH	JPN-SGP	JPN-THA	JPN-US	JPN-VN	RCEP
Agriculture, food, and beverages	12%	37%	24%	66%	71%	26%	22%	25%	46%	81%	0%	65%	40%	19%	4%
Energy, fuels, and minerals	7%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	17%	0%	0%	0%
Chemicals and allied products	11%	11%	29%	0%	2%	47%	41%	32%	13%	69%	18%	50%	2%	15%	10%
Pharmaceuticals and medical equipment	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Footwear, leather, and related products	35%	8%	36%		0%	45%	69%	66%	38%	25%	0%	61%	0%	4%	7%
Wood, paper, and printed materials	5%	7%	1%	0%		20%	8%	3%	0%	86%	0%	8%	0%	4%	0%
Textiles and apparel	17%	2%	3%	0%	0%	62%	76%	27%	79%	64%	0%	59%	0%	8%	20%
Miscellaneous manufactured goods	2%	0%	2%		0%	20%	27%	2%	13%	60%	1%	39%	0%	2%	2%
Precious metals, stones, and jewelry	0%	2%	0%		0%	1%	0%	0%	1%	8%	0%	41%	0%	63%	1%
Metals and metal products	5%	0%	29%		36%	3%	17%	2%	0%	3%	0%	26%	0%	11%	2%
Machinery and mechanical equipment	0%	0%	0%		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Electrical and electronic equipment	0%	0%	0%		0%	1%	2%	0%	0%	0%	0%	3%	0%	0%	0%
Transport and automotive equipment	0%	0%	7%		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Arms and ammunition		0%											0%		12%
Furniture and home goods	1%	0%	5%		0%	1%	3%	76%	100%	1%	0%	35%	0%	15%	2%
Arts, antiques, and collectibles	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0
<b>Average</b>	6%	4%	9%	9%	8%	15%	18%	16%	19%	26%	1%	27%	3%	9%	4%



None of the imports entering under preferential schemes into Australia had zero MFN rates, although nearly 2 million of the 5.8 million monthly observations at HS 8-digit level in 2023 did enter duty-free. APEC Members thus appear to use their trade agreements with Australia to qualify for the tariff preferences.

To be sure, the preference margins for products entering Australia are quite low, given Australia's low tariffs. At the HS 6-digit level of disaggregation, in 2023, almost all preferential shipments from APEC Members into Australia were reported to have a preference margin of 5 percent (table 3.5). In these cases, the preferential applied duty was zero percent. Preference utilization rates (the value of preferential shipments divided by overall shipments) vary by APEC member and chapter – the highest utilization rates are in chapter 43 (at 100 percent, covering raw, tanned, or dressed furskins); chapter 60 (96 percent, fabrics made from cotton, wool, synthetic fibers, or blends); and chapter 36 (93 percent, explosives, pyrotechnic products, and matches). However, utilization is less than 10 percent in chapter 81 (rare and refractory metals), and chapter 65 (hats, caps, helmets, and similar items). Twelve chapters had no utilization.

**Table 3.5 Preferential margins of HS 6-digit products entered into Australia under preferences from APEC Members in 2023**

Preference margin	Share of total entering under preferences	Average PTA utilization rate
1%	2%	1.1%
2%	0%	0%
3%	0%	0.2%
3.8%	0%	0%
4%	1%	23.4%
5%	97%	52.5%

### 3.2 PTA UTILIZATION AND ROO RESTRICTIVENESS AND DIVERGENCE

How then do ROO restrictiveness and divergence relate to utilization? This question is analyzed by merging the datasets of product-specific ROO with the dataset on preference utilization of Australian PTAs. Pairwise correlations between preference utilization and ROO restrictiveness suggest that utilization declines with ROO restrictiveness (table 3.6). Preference utilization is also correlated positively with preference margins (suggesting that APEC Members take advantage of Australian preferences especially in categories with significant preferential margins) and shipment values (suggesting both that industries with high exports, and thus likely large exporters, are better placed to qualify for preferences and that ability to utilize preferences helps promote exports). Utilization is also inversely correlated with divergence of ROO among Australia's agreements applicable to a trading partner, applied duty rates, and with peak ROO restrictiveness.

**Table 3.6 Pairwise correlations at product-level between preferential trade, preference margins, preference utilization, zero MFN, and ROO restrictiveness and divergence in Australia's PTAs with APEC Members in 2023**

	Preference utilization	Value of preferences	Preference margin	Applied duty	ROO restrictiveness	ROO divergence
Value of preferential imports	0.02					
Preference margin	0.06	0.005				
Applied duty	-0.05	-0.003	-0.75			
ROO restrictiveness	-0.14	-0.02	0.002	0.02		
ROO divergence	-0.04	-0.02	0.002	0.01	0.31	
Peak ROO	-0.12	-0.02	-0.003	0.02	0.93	0.26

Econometric analysis of the Australian data for 2023 with sector and year fixed effects also suggest that preference utilization rates are positively associated with preference margins and negatively associated with ROO restrictiveness and ROO divergence (table 3.7).

**Table 3.7 Regression results on preference utilization**

Independent variables			
ROO restrictiveness	-0.104***	-0.103***	-0.086**
	(0.005)	(0.02)	(0.0054)
ROO divergence	-0.04***	-0.04***	-0.02
	(0.007)	(0.01)	(0.008)***
Preference margin	0.12***	0.11***	0.1***
	(0.021)	(0.021)	(0.02)
Year fixed effect	No	Yes	Yes
Sector fixed effect	Yes	Yes	Yes
Economy fixed effect	No	No	Yes
N	13,090	13,090	13,090
Adj. R-sq	0.12	0.13	0.34

\*\*\* significant at 1 percent level; \*\* significant at 5 percent level; \* significant at 10 percent level. Standard errors in parentheses.

### **3.3 MSMEs' VIEWS ON RESTRICTIVE AND DIVERGENT ROO AND THEIR ASSOCIATED PROCEDURES**

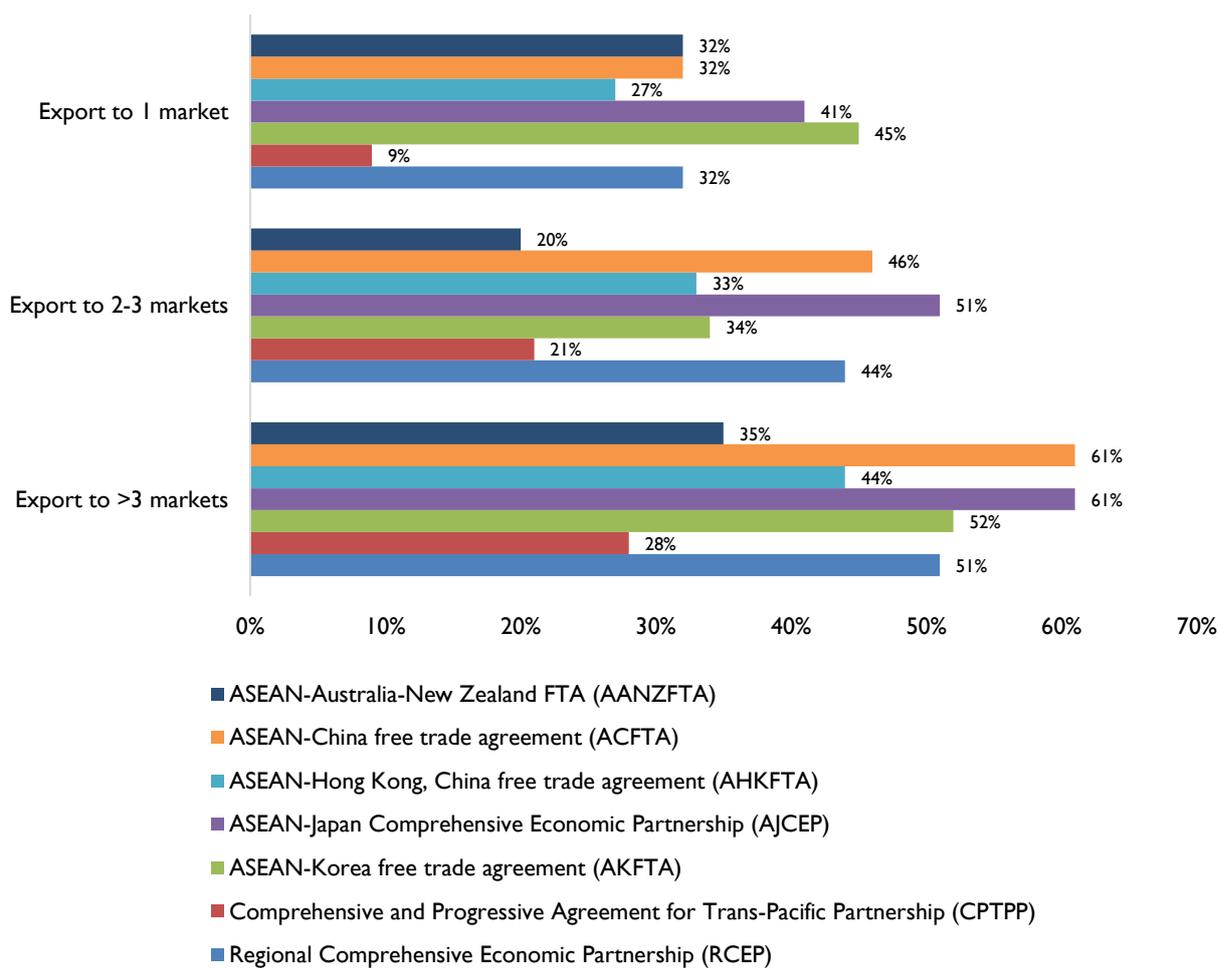
To further understand the views of firms, especially those of MSMEs, on the impact of restrictiveness and divergence of ROO and their associated procedures across PTAs on their exports, this study developed an indicative survey fielded to 410 firms in four APEC economies in the ASEAN region (Indonesia; Malaysia; the Philippines; and Thailand) from six industries covering products such as plastics, chemicals, wood products, machinery, and vehicles under ten specific chapters (29, 39, 40, 69, 80, 84, 85, 86, 87, and 88). The survey sought to gain an understanding of MSMEs' utilization of the various PTAs available to them, and the relevance of ROO restrictiveness and divergence and various regime-wide ROO and their associated procedures for MSMEs' use of PTA preferences as well as the concurrent use of several PTAs.

The sample and methodology are described in appendix 2. The sample was disaggregated into firms that exported to only one market in 2024, firms that exported to 2-3 markets, and firms that sold to four or more markets (referred as multimarket / diversified exporters). Some 32 percent of the firms surveyed derive 1-10 percent of their revenues from exports under PTAs, while 27 percent derive 11-25 percent and 28 percent derive over 26 percent or more. 21 percent of the firms surveyed report deriving no export revenue from the analyzed PTA markets.

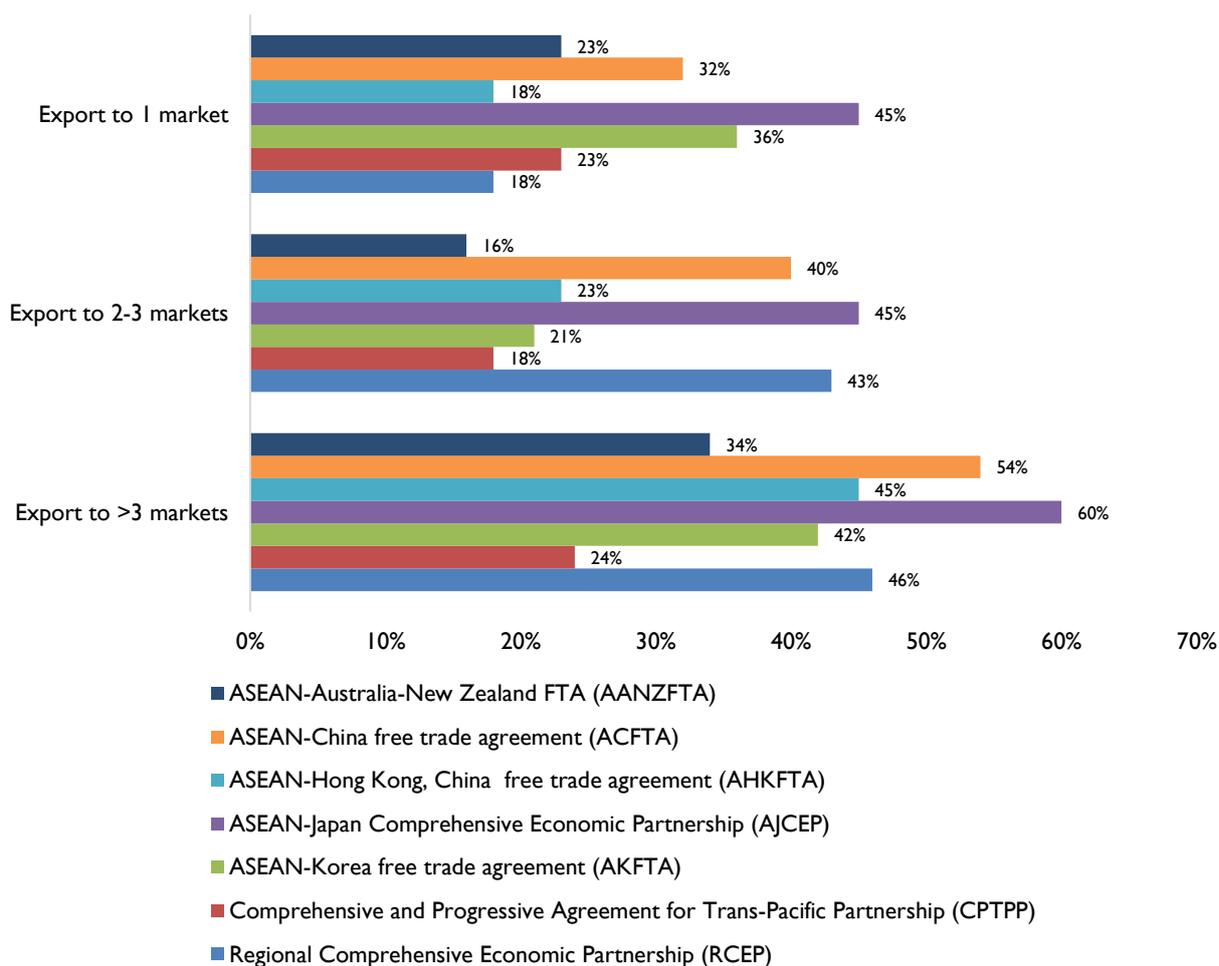
The surveyed firms, especially multimarket exporters, showed strong understanding of the various trade agreements and reported using many of them. For example, over 60 percent of exporters that sell to four or more markets reported knowing about the ASEAN-China and ASEAN-Japan FTAs and, respectively 54 percent and 60 percent reported using them (figures 3.1 and 3.2). Awareness and usage of the CPTPP is relatively low among all three groups of exporters; fewer than 30 percent of multimarket exporters know about the CPTPP, which is not surprising, noting that only Malaysia is part of the CPTPP among the economies where the surveyed MSMEs are located. Low CPTPP awareness may partly be driven by the inclusion of non-CPTPP members (i.e. Indonesia; the Philippines; and Thailand) in the sample.

Perhaps somewhat surprising in light of its low utilization by firms entering the Australian market, RCEP is better known than AANZFTA among multimarket exporters. This may reflect the fact that the surveyed firms that report using RCEP are exporting mainly to other ASEAN members, China and Japan, rather than to Australia.

**Figure 3.1** Surveyed firms' knowledge about the various PTAs, by export diversification

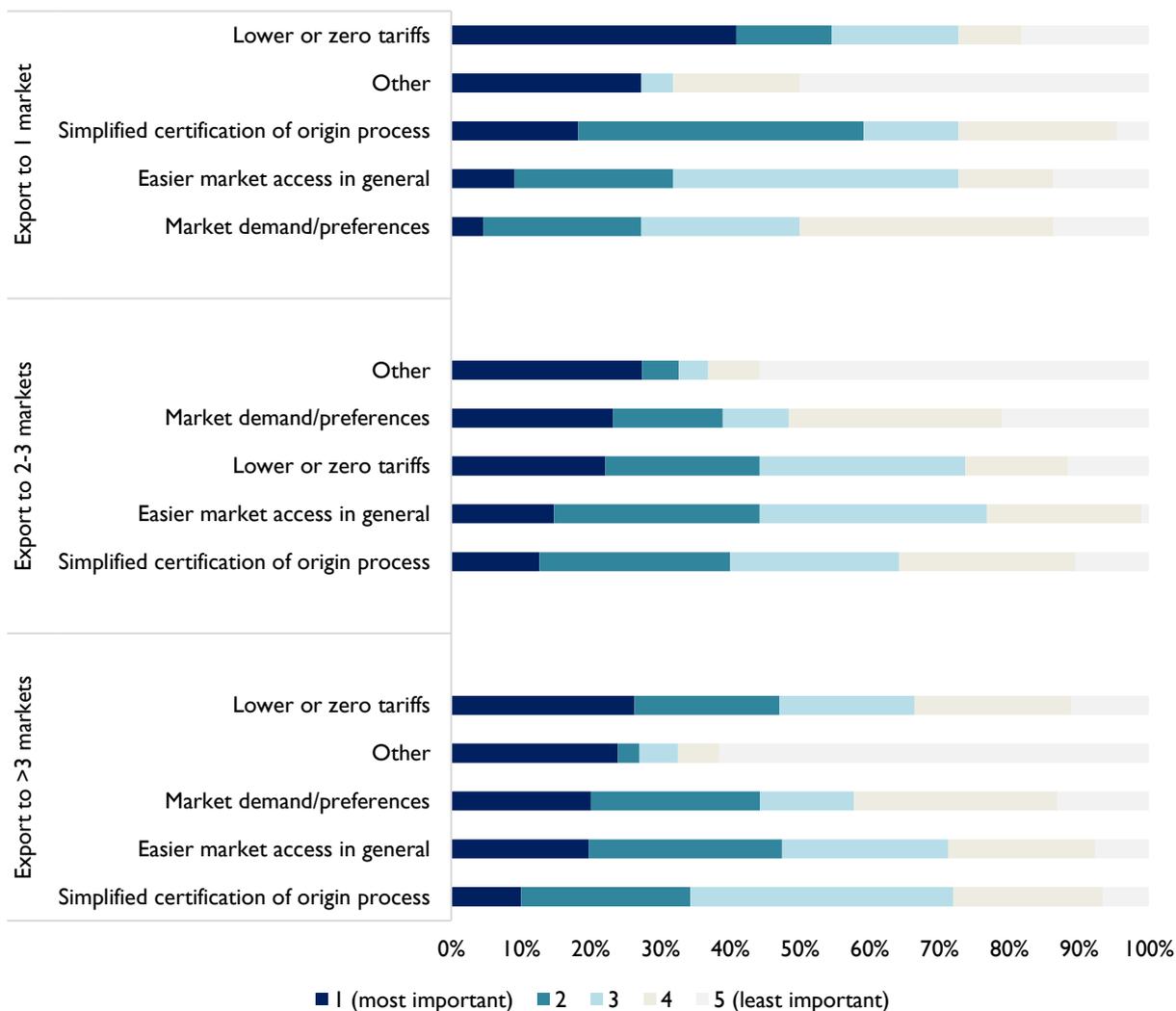


**Figure 3.2** Surveyed firms’ usage of the various PTAs, by export diversification



There are five further policy-relevant patterns. First, the most important motivation for firms to use PTAs is preferential treatment. Low or zero tariffs are highlighted as the most important factor in using PTAs (at 26 percent, as compared to the second most important factor at 20 percent) for highly diversified exporters. The corresponding figure for exporters to 2-3 markets is 22 percent, and 41 percent for exporters to just one market (figure 3.3).

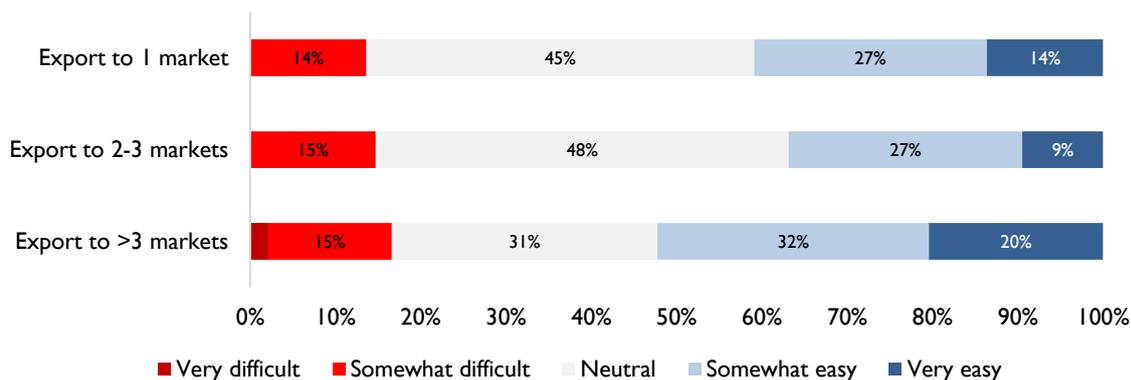
**Figure 3.3** Surveyed firms’ leading motivators to use PTAs, by export diversification



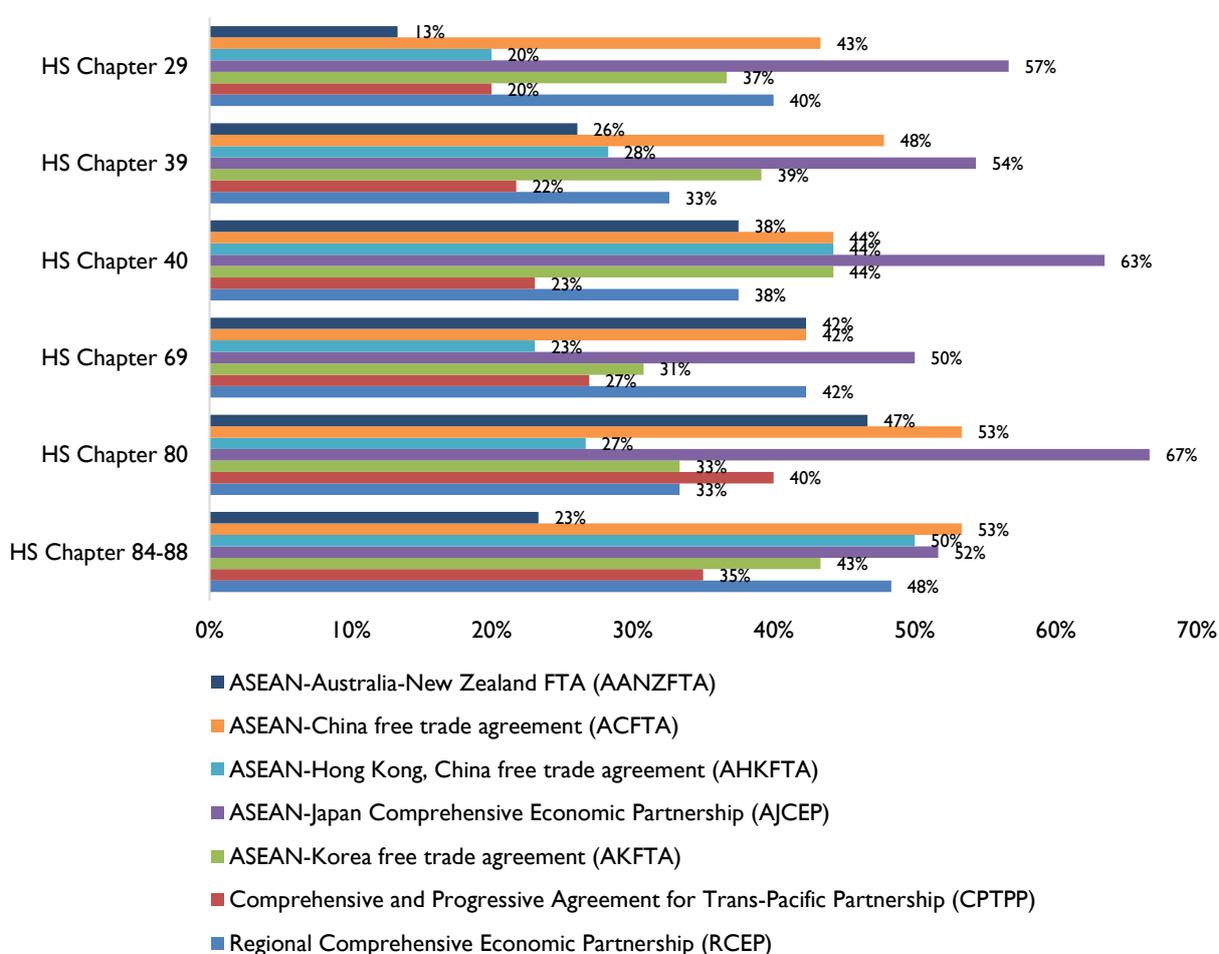
Second, as many as 50 percent of the diversified exporters (that are expected to be accustomed to dealing with ROO) find ROO compliance somewhat easy or very easy (figure 3.4). However, only a third of exporters to 2-3 markets find ROO compliance easy. This suggests both that exporters learn to comply with ROO “by doing”, and that exporters currently selling to 2-3 markets may be held back from diversifying their export markets because of the challenges with ROO compliance.

The perceived challenges also vary by sector. Firms in chapter 40 (rubber and articles thereof) find it easier to meet most ROO than firms in chapters 80 (tin articles), 69 (ceramic products), and 29 (organic chemicals) (figure 3.5). ROO in ASEAN agreements seem easier to meet in most categories than CPTPP or RCEP.

**Figure 3.4** Surveyed firms' views on difficulties of meeting ROO

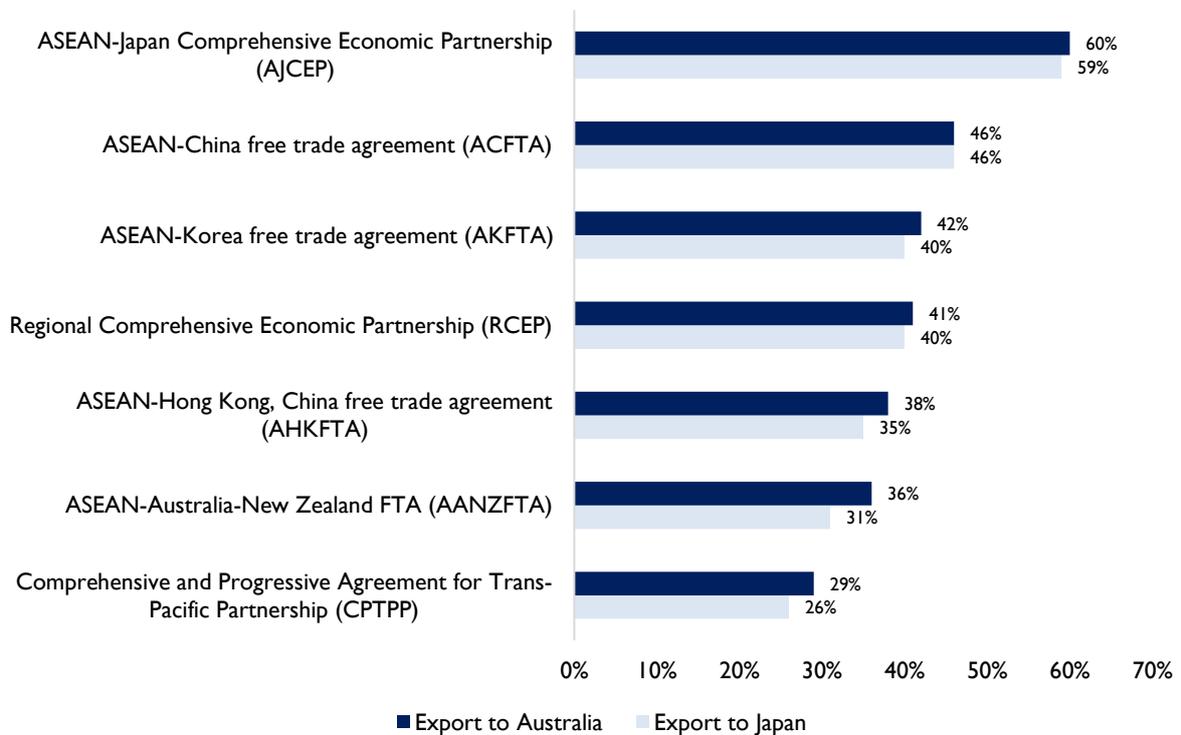


**Figure 3.5** Share of surveyed firms finding an agreement's ROO easy to comply with



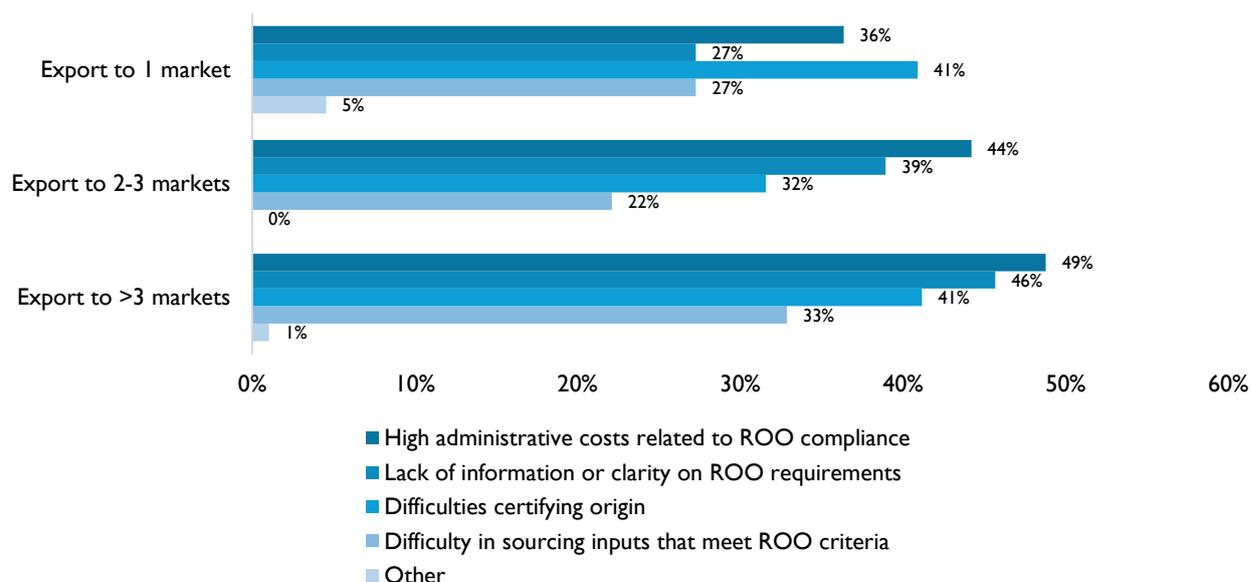
Of firms that export to Australia and Japan respectively, views on ROO compliance are quite similar. Some 59 percent of exporters to Japan see ASEAN-Japan FTA’s ROO as relatively easy to meet (figure 3.6). However, only 36 percent of exporters to Australia see AANZFTA ROO as easy to meet, and even fewer (29 percent) see CPTPP ROO as easy to meet. Granted, these responses can reflect lack of awareness about these agreements.

**Figure 3.6** Surveyed firms’ views of ease of ROO compliance, exporters to Australia and Japan



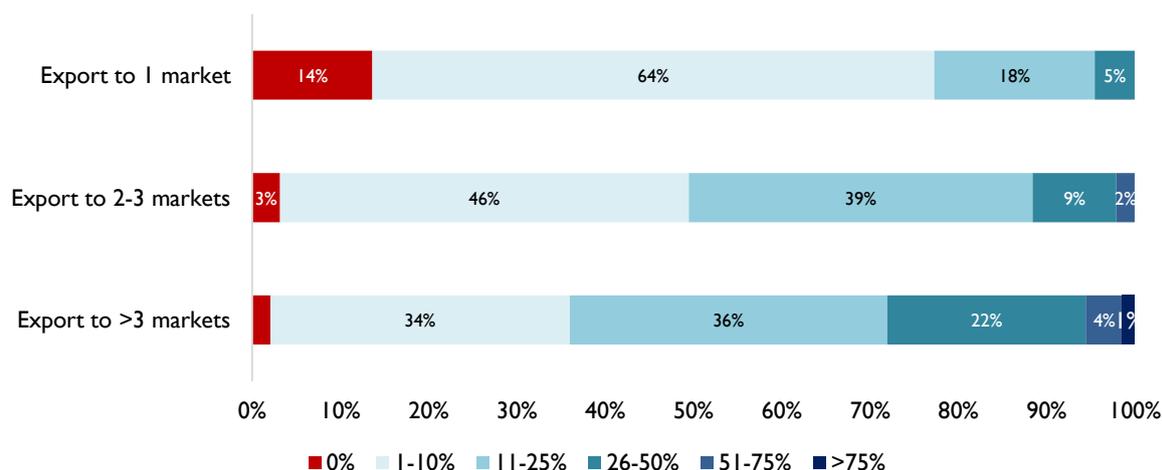
The third main trend reflected in the survey data is about the specific challenges implied by ROO and their associated procedures. The most complicated elements in the compliance with ROO and their associated procedures are the high administrative costs, followed by lack of information on ROO requirements (figure 3.7). For single-market exporters, certification of origin also appears to pose problems.

**Figure 3.7** Surveyed firms’ views of leading challenges in meeting ROO and their associated procedures, by export diversification



Fourth, firms estimate losing revenue due to difficulties in meeting ROO. Of single-market exporters, 64 percent estimate losses at 1-10 percent of export revenue (figure 3.8). The costs rise notably for multimarket exporters, of which over a third believe the revenue losses are 11-25 percent and 27 percent of them believe the loss to be higher than that.

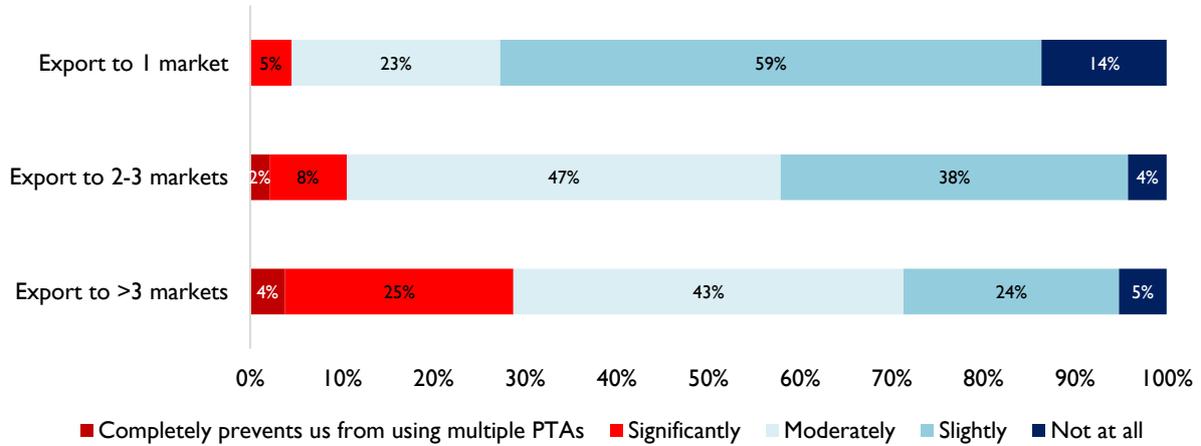
**Figure 3.8** Surveyed firms’ estimated export revenue losses due to complex rules of origin and difficulties meeting ROO, by export diversification



Fifth, multimarket exporters are particularly constrained by divergent ROO regimes, with 25 percent of exporters to more than three markets reporting significant difficulties to use multiple PTAs due to ROO and 43 percent reporting moderate difficulties (figure 3.9). Four percent reported ROO prohibiting them from diversifying altogether. Meanwhile, eight percent of firms that export to 2-3 markets reported significant difficulties and 47 percent reported moderate difficulties to deal with divergent ROO. Firms that sell to only one market reported mostly only slight challenges, indicating these firms may not have sought to diversify yet. Further indicative

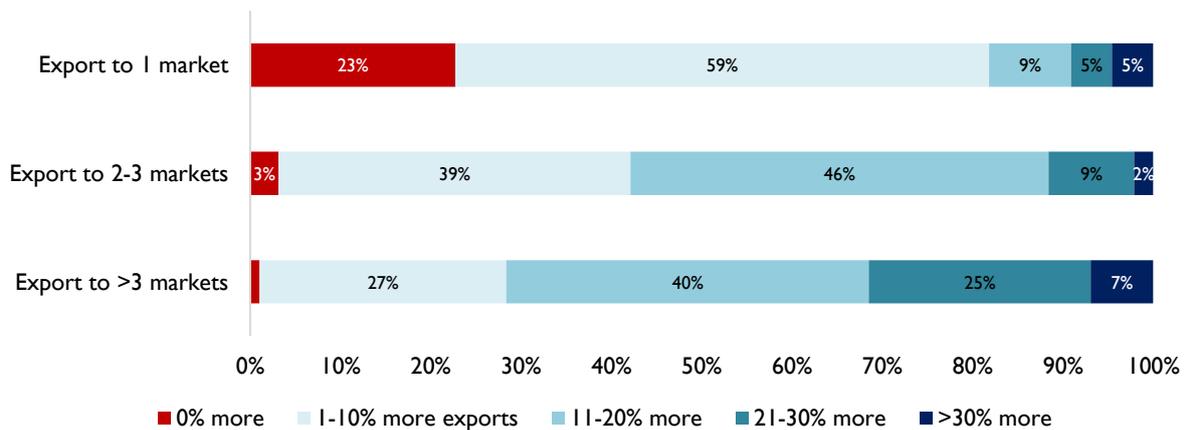
regression analysis suggests that the reported difficulty of meeting divergent ROO is driven by the firm’s level of export diversification, rather than other factors such as the firm’s sector, age, or revenue growth. The larger the number of markets a firm exports, the more challenges it faces to meet diverse ROO regimes.

**Figure 3.9 Surveed firms’ reported challenges in using multiple ROO regimes, by export diversification**



Asked about how much more they would export if ROO across markets were similar, 27 percent of diversified exporters that sell to more than three markets responded 1-10 percent more and 40 percent responded 11-20 percent, and as many as 32 percent reported gains of more than 20 percent. The corresponding figures for firms that export to 2-3 markets were 39 percent, 46 percent, and 11 percent respectively (figure 3.10). Further data analysis suggests that the multimarket exporters also expect the largest gains from convergence of ROO across agreements. In addition, among the sectors covered in the survey, exporters of plastics (chapter 39), ceramics (chapter 69), and base metals (chapter 80) anticipate gains from convergent ROO. All in all, the analysis suggested that simplified and less restrictive ROO and ROO convergence across PTAs would deliver great export dividends for MSMEs export revenues and reduce their PTA compliance costs.

**Figure 3.10 Surveed firms’ estimated export revenue gains if ROO across agreements were the same, by export diversification**



### **3.4 GOVERNMENTS' CHALLENGES FOR CUSTOMS TO ADMINISTER COMPLEX ROO REGIMES**

Divergent and complex ROO can also pose administrative burdens for customs agencies verifying the origin of goods. These challenges have compounded as different PTAs impose varying ROO criteria. Tanaka (2011) provides comprehensive evidence for these challenges by surveying 109 customs administrations, finding challenges related to lack of full documentation for verification of origin, lack of harmonized procedures and systems among agreements, limited technical staff familiar with origin issues, and lack of specific, standardized verification procedures. These challenges in turn decelerate origin verification and customs clearance, as well as the counterpart economy's ability to access information on the status of origin verification in the economy.<sup>10</sup> Slow verification processes can disrupt local firms' delivery schedules and supply chains and translate into costs to end consumers.

In Southeast Asia, Medalla and Balboa (2009) find that some ROO leave room for interpretation and thus subjective decisions. For example, the 40 percent local value-added requirement under the ASEAN Common Effective Preferential Tariff (CEPT) scheme is not applied uniformly, leading to differences in enforcement and increased processing times. Capacity constraints in customs agencies are an additional complication in ROO verification.

Economies have sought to develop policies and programs, and technology solutions to facilitate ROO compliance and verification. The following section explores some of these solutions.

### **3.5 RESULTS IN SUM**

In sum, this section has found that:

- Based on the data on Australian imports, preference utilization rates vary significantly across sectors and somewhat across economies in the APEC region. High-utilization sectors include sectors where preference margins are typically more elevated - transport and automotive equipment; textiles and apparel; footwear, leather, and related products; and miscellaneous manufactured goods. There is relatively lower utilization in energy, fuels, and minerals; arts, antiques, and collectibles; pharmaceuticals and medical equipment; and electrical and electronic equipment. Utilization rates are higher in industries with high export volumes, suggesting the presence of large and/or habitual exporters with the ability to comply with ROO.
- The utilization data from Australia and Japan suggests that ROO restrictiveness undermines PTA utilization. Restrictive ROO especially in final goods are negatively correlated with PTA utilization in the APEC region, a finding that echoes many other studies and suggests that ROO are used as a protectionist instrument to compensate for tariff liberalization. Meanwhile, utilization is limited in sectors with low or zero MFN rates, indicating that traders in these sectors opt to use the MFN channel under such circumstance.
- Divergence across ROO and their associated procedures also appears, based on econometric and survey evidence, to undermine preference utilization. This may capture both certain confusion created by divergent ROO and their associated procedures among traders, and low utilization of certain agreements when many are available, resulting in lower average utilization.

- Simplified and less restrictive product-specific ROO and ROO convergence across PTAs would have significant benefits to exporters: they would open greater access to extra-regional inputs and facilitate multimarket exporters to access several markets at once. Asked about the possible gains if ROO were the same across the PTAs they use, practically all diversified exporters that sell to more than three markets expected to export more in such a scenario. As many as 32 percent of these firms expected to export over 20 percent more if all ROO were the same.
- Permissive regime-wide ROO, such as cumulation of origin across parties, and simplified administrative procedures related to certification of origin, such as electronic certification and trader self-certification, can further enable SMEs to utilize different PTAs.

#### **4. RECOMMENDATIONS ON ROO REGIME AND THEIR ASSOCIATED PROCEDURES' DESIGNS AND METHODS OF IMPLEMENTING THEM TO REDUCE THE COMPLIANCE BURDENS FOR FIRMS, ESPECIALLY FOR MSMES**

This section discusses the designs of ROO and their associated procedures, and methods of implementing preferential ROO provisions in the APEC region trade agreements in ways that reduce the compliance burdens for firms, especially MSMEs. Addressing the restrictiveness and divergence of ROOs and their associated procedures is crucial for enhancing MSME participation in global trade and benefiting from hard-won PTAs.

Key policy recommendations for APEC Members are as follows.

First, RCEP and CPTPP could offer optional ROO that align for example with ASEAN's frequently used regional value content provisions, thereby offering flexibility within agreement and convergence with ASEAN agreements. APEC could also provide support, for example by reviewing the impacts on RCEP and CPTPP utilization.

Second, regime-wide ROO can be used to support MSMEs qualify for tariff preferences. Relevant research has found that permissive regime-wide ROO, such as cumulation or self-certification of origin, can promote trade and PTA utilization<sup>11</sup>. If diagonal and full cumulation across PTA members and extra-regional parties is allowed, exporters can access a wider pool of inputs and product variety. For example, Pacific Alliance economies could all promote cumulation with Japan and Korea, with which each Pacific Alliance member has a PTA. Encouraging producers to use the full cumulation provisions within mega-regional agreements, such as CPTPP and RCEP where cumulation has been challenging, will allow producers to source inputs from any member economies and qualify for origin. Promoting the use of roll-up (absorption) rules, where non-originating materials that undergo substantial transformation within the bloc are treated as fully originating, can further support MSMEs in meeting ROO criteria. Other methods to promote PTA utilization could be to promote self-certification and increase the threshold of *de minimis* to allow a higher percentage of non-originating materials.

Third, APEC Members can further promote information on ROO, to meet MSMEs' concerns about lack of transparency of ROO. For example, they could develop an APEC-wide online platform that enables MSMEs to efficiently assess their readiness to comply with specific ROO requirements. For example, the portal could enable an MSME to type in its current production process to then see whether it qualifies for ROO as written in the various PTAs available to it. This platform should provide step-by-step compliance guidance and automated advisory services. This could build on or collaborate with the International Trade Centre's Rules of Origin Facilitator, which provides similar types of information and forthcoming compliance tools<sup>12</sup>, and the Inter-American Development Bank's ConnectAmericas platform which provides a useful model for these digital solutions.

Fourth, APEC Members could further pilot AI and blockchain technologies to automate and simplify origin verification processes. AI could help trace certain products to their origins based on the product's characteristics. AI-driven risk assessment models can help customs authorities prioritize high-risk shipments while expediting the clearance of low-risk goods. Outside the

APEC region, Brazil has been a global frontrunner in using AI to assess the risks associated with imports.<sup>13</sup> Having internalized billions of different declaration permutations, Brazil's SISAM AI systems can quickly estimate the probability of 30 types of errors, such as false descriptions of goods, errors in nomenclature codes, errors in declared places of origin, non-applicable tax regimes, and wrong preferential tariff claims.<sup>14</sup>

Blockchain can also help verify origin. The U.S. Customs and Border Protection (CBP) has developed several blockchain use cases and also carried out a proof of concept for verifying certificates of origin for goods traded under the former NAFTA and Central America FTA.<sup>15</sup> In the proof of concept, the CBP found that blockchain helped expedite processing, enabled ten separate system integrations, and overall showed promise for improving the processing and tracking of trade-related documents.<sup>16</sup>

Fifth, expanding MSME outreach and training programs remains paramount in improving awareness and capacity in utilizing PTAs. Given that many MSMEs, even the exporters, remain rather unaware of some of the PTAs available to them (such as CPTPP for Malaysian exporters, per the survey), governments and trade associations should scale up their promotion and technical assistance programs for MSMEs, in order to raise awareness of their benefits and operational modalities.

Sixth, APEC Members could further support capacity building of customs agencies, such as through the establishment of local teams that study trends and changes in the origin of imports, training officers in field offices to detect false origin documentation, and coordinating requests to various trading partners for verifying certificates of origin (Montagnat-Rentier, 2019).

Seventh, this study has unearthed a number of issues worth further research. These include: (i) the relationship between regime-wide ROO, such as self-certification or cumulation, and PTA utilization; (ii) the relationship between the frequency and rigor of audits and PTA utilization rates; (iii) whether any sectors are particularly affected by the divergent preferential ROO; (iv) if there is increasing convergence or divergence on ROO across PTAs around the globe; (v) PTA utilization under different types of preferential ROO. For example, an RVC rule may invite gaming, whereby traders may claim a higher RVC than the product actually has, in order to meet the ROO requirement. In contrast, ROO requiring a change in tariff classification is easier to be monitored and enforced; (vi) the compliance and administrative costs of the government when their economies' PTAs have complex ROO with divergent product-specific ROO and/or divergent ROO regimes and associated procedures across the various PTAs; and (vii) the extent to which economies' use of different versions of the Harmonized System may play a role in firms' application of ROO and PTA utilization.

Table 4.1 highlights some global experiences in promoting MSMEs' ROO compliance and governments' ability to administer ROO.

**Table 4.1 Selected practices in ROO compliance and verification**

	Program/Initiative	Description	Expected impact
<b>Supporting MSMEs</b>	International Trade Center Rules of Origin Facilitator	Rules of Origin Facilitator is the first comprehensive global online resource on tariffs, trade agreements and rules of origin designed with SMEs in mind.	Enabled MSMEs to meet ROO in any market.
	IDB ConnectAmericas	A digital platform providing MSMEs with trade intelligence and ROO compliance tools.	Improved MSME awareness of trade agreements and streamlined access to origin rules.
	Access2Markets Portal (European Commission)	Allows businesses to obtain necessary trade information on tariffs, procedures, and ROO compliance.	Improved access to regulatory requirements and trade agreement benefits.
	European Union's Registered Exporter System (REX)	Enables trader self-certification of origin, reducing reliance on third-party certification.	Lower compliance costs and faster customs clearance.
	ASEAN Single Window (ASW)	Regional initiative integrating customs processes across ASEAN economies, including electronic certification of origin.	Improved efficiency in ROO verification and reduced administrative burdens.
	Pan-Euro-Med Cumulation System (PEM Convention)	Allows cumulation of origin across participating economies, facilitating trade within the region.	Expanded sourcing flexibility and improved utilization of trade preferences.
	Singapore's TradeNet System	A single-window platform integrating electronic origin certification with customs processing.	Reduced processing times and enhanced trade facilitation.
<b>Supporting governments</b>	USMCA Blockchain Pilot for ROO Verification	Uses blockchain to track and verify ROO compliance across North America.	Increased transparency, reduced fraud, and streamlined customs procedures.
	Australia's Integrated Cargo System (ICS)	Uses AI-driven risk assessment to improve customs processing and origin verification.	More efficient resource allocation and reduced delays in trade transactions.
	Master Trainer Program on Rules of Origin (WCO-JICA)	Builds sustainable training capacity in Customs administrations to improve ROO implementation and enforcement.	Strengthened customs expertise, benefiting both enforcement agencies and traders.
	EU-WCO Rules of Origin RoO Africa Programme	Supports African economies in improving their ROO capacity for intra-African trade.	Increased ability of governments and businesses to implement and comply with ROO in AfCFTA and beyond.

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## APPENDIX A – CHAPTER-LEVEL ROO RESTRICTIVENESS SCORE, BY AGREEMENT

Chapter	Description	AANZ FTA	ASEAN- China	ASEAN- Hong Kong, China	ASEAN- Japan	ASEAN- Korea	CPTPP	ASEAN- Japan	RCEP	USMCA	Average
1	Live animals	7.0	7.0	7.0	6.0	7.0	6.0	6.0	7.0	6.0	6.7
2	Meat and edible meat offal	6.0	7.0	4.0	7.0	7.0	6.0	7.0	7.0	6.0	6.4
3	Fish and crustaceans, mollusks and other aquatic invertebrates	6.0	5.7	4.1	6.0	6.7	5.4	6.0	5.7	5.4	5.8
4	Dairy produce; birds' eggs; natural honey; edible products of animal origin, not elsewhere specified or included	3.9	4.6	4.6	6.0	6.0	6.6	6.3	4.8	7.0	5.6
5	Products of animal origin, not elsewhere specified or included	6.1	4.0	4.2	6.0	7.0	6.0	6.1	6.0	6.0	5.8
6	Live trees and other plants; bulbs, roots and the like; cut flowers and ornamental foliage	3.6	4.0	4.0	6.0	7.0	6.0	6.0	4.0	6.0	5.3
7	Edible vegetables and certain roots and tubers	6.0	4.0	5.6	6.0	7.0	6.0	6.5	6.5	6.0	6.1
8	Edible fruit and nuts; peel of citrus fruit or melons	5.7	4.0	5.5	6.0	7.0	5.9	6.0	5.7	6.0	5.9
9	Coffee, tea, maté and spices	3.7	4.0	4.0	5.7	6.3	4.6	6.4	6.1	4.2	5.1
10	Cereals	7.0	4.0	7.0	6.0	7.0	6.0	6.3	7.0	6.0	6.4
11	Products of the milling industry; malt; starches; inulin; wheat gluten	3.9	4.0	4.0	6.1	5.2	6.2	6.0	6.4	5.9	5.3
12	Oil seeds and oleaginous fruits; miscellaneous grains, seeds and fruit; industrial or medicinal plants; straw and fodder	6.0	4.0	5.7	6.0	7.0	6.0	6.0	6.3	5.9	6.0
13	Lac; gums, resins and other vegetable saps and extracts	4.8	4.0	4.5	6.0	7.0	5.8	6.0	6.1	6.2	5.7
14	Vegetable plaiting materials; vegetable products not elsewhere specified or included	5.8	4.0	5.8	6.0	7.0	6.0	6.0	6.0	6.0	6.0
15	Animal or vegetable fats and oils and their cleavage products; prepared edible fats; animal or vegetable waxes	4.0	4.0	4.1	5.4	4.1	5.4	6.0	5.9	6.9	5.1
16	Preparations of meat, of fish or of crustaceans, molluscs or other aquatic invertebrates	4.0	4.0	4.0	6.7	4.3	5.5	6.0	5.8	6.0	5.2
17	Sugars and sugar confectionery	4.0	4.0	4.0	5.4	4.0	6.2	5.8	5.4	5.8	4.9
18	Cocoa and cocoa preparations	3.8	4.0	4.0	4.5	4.0	4.1	5.4	4.0	5.7	4.4
19	Preparations of cereals, flour, starch or milk; pastrycooks' products	4.0	4.0	4.0	4.8	4.3	5.2	6.0	5.4	5.8	4.8

Chapter	Description	AANZ FTA	ASEAN- China	ASEAN- Hong Kong, China	ASEAN- Japan	ASEAN- Korea	CPTPP	ASEAN- Japan	RCEP	USMCA	Average
20	Preparations of vegetables, fruit, nuts or other parts of plants	4.0	4.0	4.0	6.7	4.2	6.4	6.0	5.5	5.9	5.2
21	Miscellaneous edible preparations	3.6	4.0	4.0	6.0	4.0	5.1	5.0	4.0	5.8	4.6
22	Beverages, spirits and vinegar	4.0	4.0	4.0	5.3	4.4	5.0	6.0	4.5	6.5	4.8
23	Residues and waste from the food industries; prepared animal fodder	4.0	4.0	4.0	4.0	4.0	5.7	5.7	5.0	5.8	4.7
24	Tobacco and manufactured tobacco substitutes	4.0	4.0	4.0	4.3	4.4	5.6	4.9	4.6	6.0	4.7
25	Salt; sulphur; earths and stone; plastering materials, lime and cement	4.0	4.0	4.0	4.0	4.0	3.9	5.9	4.2	6.0	4.5
26	Ores, slag and ash	5.0	4.0	4.9	4.0	4.0	4.0	6.0	4.0	4.0	4.4
27	Mineral fuels, mineral oils and products of their distillation; bituminous substances; mineral waxes	4.1	4.0	4.0	4.0	4.0	3.9	3.9	4.1	4.4	4.1
28	Inorganic chemicals; organic or inorganic compounds of precious metals, of rare-earth metals, of radioactive elements or	3.1	4.0	4.0	4.0	4.0	3.1	3.4	3.8	3.0	3.6
29	Organic chemicals	3.2	4.0	4.0	4.0	4.0	3.0	3.4	3.9	3.0	3.6
30	Pharmaceutical products	3.1	4.0	4.0	4.0	4.0	3.3	4.9	4.1	3.7	3.9
31	Fertilizers	3.0	4.0	4.0	4.0	4.0	3.0	3.3	4.0	3.0	3.6
32	Tanning or dyeing extracts; tannins and their derivatives; dyes, pigments and other coloring matter; paints and varnish	3.3	4.0	4.0	4.0	4.0	3.5	3.8	3.7	4.4	3.8
33	Essential oils and resinoids; perfumery, cosmetic or toilet preparations	3.7	4.0	4.0	4.0	4.0	3.7	4.2	4.0	3.7	3.9
34	Soap, organic surface-active agents, washing preparations, lubricating preparations, artificial waxes, prepared waxes, p	3.3	4.0	4.0	4.0	4.0	3.5	3.7	3.9	3.5	3.8
35	Albuminoidal substances; modified starches; glues; enzymes	3.3	4.0	4.0	4.4	4.0	3.7	4.6	3.5	3.4	3.9
36	Explosives; pyrotechnic products; matches; pyrophoric alloys; certain combustible preparations	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
37	Photographic or cinematographic goods	3.9	4.0	4.0	4.0	4.0	4.0	4.1	4.0	4.8	4.1
38	Miscellaneous chemical products	3.9	4.0	4.0	4.0	4.0	3.5	4.0	4.3	3.2	3.9
39	Plastics and articles thereof	4.1	4.0	4.0	4.0	4.0	4.3	3.9	4.0	5.0	4.1

Chapter	Description	AANZ FTA	ASEAN- China	ASEAN- Hong Kong, China	ASEAN- Japan	ASEAN- Korea	CPTPP	ASEAN- Japan	RCEP	USMCA	Average
40	Rubber and articles thereof	4.2	4.0	4.0	4.0	4.1	4.0	4.0	4.1	4.2	4.1
41	Raw hides and skins (other than furskins) and leather	3.9	4.0	4.0	6.0	4.0	4.2	4.5	4.0	5.3	4.4
42	Articles of leather; saddlery and harness; travel goods, handbags and similar containers; articles of animal gut (other	4.1	4.0	4.0	6.0	4.1	5.7	6.0	4.0	6.2	4.9
43	Furskins and artificial fur; manufactures thereof	4.1	4.0	4.0	5.9	4.0	4.8	4.0	4.0	5.1	4.4
44	Wood and articles of wood; wood charcoal	4.0	4.0	4.0	4.1	4.0	4.0	4.8	4.0	4.0	4.1
45	Cork and articles of cork	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	3.9	4.0
46	Manufactures of straw, of esparto or of other plaiting materials; basketware and wickerwork	4.0	4.0	4.0	5.6	4.0	5.3	4.0	4.0	5.3	4.5
47	Pulp of wood or of other fibrous cellulosic material; recovered (waste and scrap) paper or paperboard	3.8	4.0	4.0	4.0	4.0	4.0	6.0	4.6	6.0	4.5
48	Paper and paperboard; articles of paper pulp, of paper or of paperboard	4.0	4.0	4.0	4.0	4.0	4.1	5.4	4.0	5.6	4.3
49	Printed books, newspapers, pictures and other products of the printing industry; manuscripts, typescripts and plans	4.0	4.0	4.0	4.0	4.0	4.0	6.0	4.0	6.0	4.4
50	Silk	4.7	4.0	4.0	4.8	4.0	4.6	4.9	4.7	5.0	4.5
51	Wool, fine or coarse animal hair; horsehair yarn and woven fabric	4.2	4.0	4.2	5.3	4.0	5.3	5.5	4.9	5.5	4.8
52	Cotton	4.1	4.0	4.0	4.6	4.0	5.8	5.0	4.1	6.4	4.7
53	Other vegetable textile fibres; paper yarn and woven fabrics of paper yarn	4.4	4.0	4.0	5.3	4.0	4.7	5.1	4.8	5.1	4.6
54	Man-made filaments; strip and the like of man-made textile materials	5.0	4.0	4.0	5.4	4.0	6.1	6.0	5.1	7.0	5.2
55	Man-made staple fibres	4.0	4.0	4.0	4.7	4.0	5.8	5.4	4.4	6.5	4.8
56	Wadding, felt and nonwovens; special yarns; twine, cordage, ropes and cables and articles thereof	5.4	4.0	4.0	5.4	4.0	7.0	7.0	5.8	7.0	5.5
57	Carpets and other textile floor coverings	6.0	4.0	4.0	7.0	4.0	6.0	7.0	6.0	7.0	5.7
58	Special woven fabrics; tufted textile fabrics; lace; tapestries; trimmings; embroidery	6.1	4.0	4.0	7.0	4.0	7.0	6.8	6.0	7.0	5.8
59	Impregnated, coated, covered or laminated textile fabrics; textile articles of a kind suitable for industrial use	5.7	4.0	4.0	5.5	4.0	6.1	6.4	6.0	7.0	5.4

Chapter	Description	AANZ FTA	ASEAN- China	ASEAN- Hong Kong, China	ASEAN- Japan	ASEAN- Korea	CPTPP	ASEAN- Japan	RCEP	USMCA	Average
60	Knitted or crocheted fabrics	6.0	4.0	4.0	7.0	4.0	7.0	6.9	6.0	7.0	5.8
61	Articles of apparel and clothing accessories, knitted or crocheted	4.9	4.0	4.0	7.0	4.0	8.0	7.0	6.0	7.9	5.9
62	Articles of apparel and clothing accessories, not knitted or crocheted	4.9	4.0	4.0	4.4	4.0	8.0	7.0	6.0	8.0	5.6
63	Other made up textile articles; sets; worn clothing and worn textile articles; rags	5.9	4.0	4.2	4.3	4.2	8.0	6.9	5.8	8.0	5.7
64	Footwear, gaiters and the like; parts of such articles	4.0	4.0	4.0	6.0	4.0	5.1	5.2	4.0	7.6	4.9
65	Headgear and parts thereof	4.0	4.0	4.0	4.5	4.0	4.5	4.5	4.0	5.3	4.3
66	Umbrellas, sun umbrellas, walking-sticks, seat-sticks, whips, riding-crops, and parts thereof	4.0	4.0	4.0	4.0	4.0	4.7	4.7	4.0	5.2	4.3
67	Prepared feathers and down and articles made of feathers or of down; artificial flowers; articles of human hair	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
68	Articles of stone, plaster, cement, asbestos, mica or similar materials	4.0	4.0	4.0	4.0	4.0	3.9	4.0	4.0	5.6	4.2
69	Ceramic products	4.0	4.0	4.0	4.0	4.0	6.0	6.0	4.0	6.0	4.7
70	Glass and glassware	4.0	4.0	4.0	4.1	4.0	4.2	4.1	4.0	5.7	4.2
71	Natural or cultured pearls, precious or semi-precious stones, precious metals, metals clad with precious metal, and arti	4.2	4.0	4.3	4.6	3.8	4.8	5.4	4.2	4.7	4.5
72	Iron and steel	4.1	4.0	4.0	4.0	4.0	5.0	4.8	4.0	5.2	4.3
73	Articles of iron or steel	4.0	4.0	4.0	4.0	4.0	4.8	4.8	4.0	5.2	4.3
74	Copper and articles thereof	4.1	4.0	4.1	4.0	4.0	4.0	4.3	4.0	4.8	4.1
75	Nickel and articles thereof	4.1	4.0	4.2	4.0	4.0	3.7	4.0	4.0	3.7	4.0
76	Aluminum and articles thereof	4.1	4.0	4.1	4.0	4.0	3.9	4.3	4.0	4.5	4.1
78	Lead and articles thereof	4.4	4.0	4.4	4.0	4.0	4.0	4.0	4.0	4.6	4.2
79	Zinc and articles thereof	4.3	4.0	4.3	4.0	4.0	4.0	4.0	4.0	5.3	4.2
80	Tin and articles thereof	4.6	4.0	4.6	4.0	4.0	4.0	4.0	4.0	5.2	4.3
81	Other base metals; cermets; articles thereof	4.2	4.0	4.8	4.0	4.0	3.1	3.7	3.1	3.1	3.8

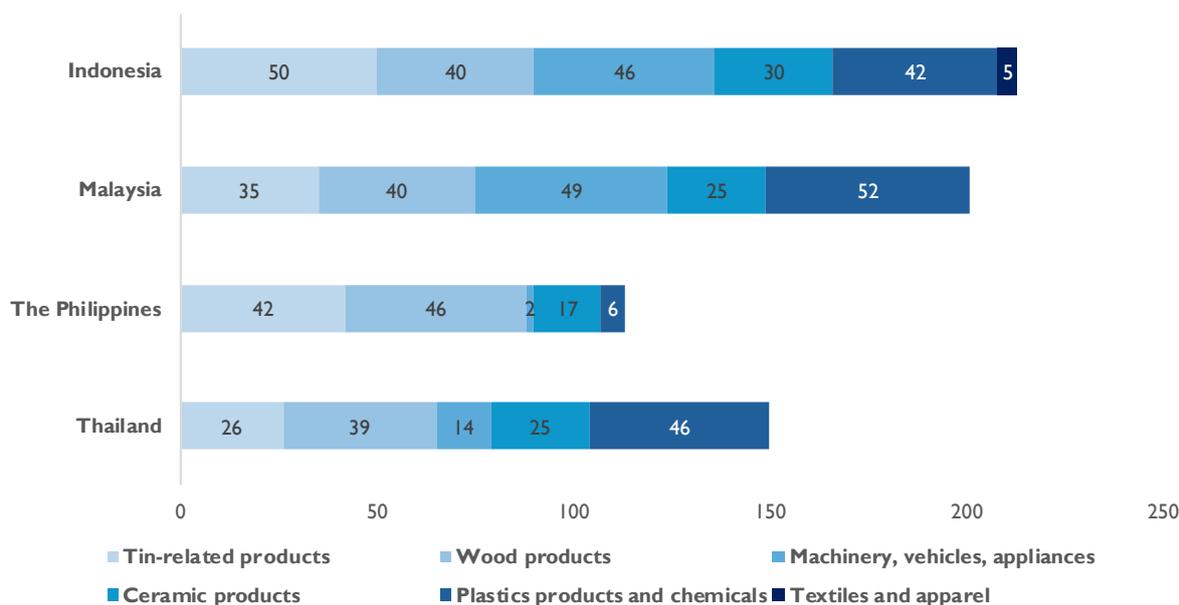
Chapter	Description	AANZ FTA	ASEAN- China	ASEAN- Hong Kong, China	ASEAN- Japan	ASEAN- Korea	CPTPP	ASEAN- Japan	RCEP	USMCA	Average
82	Tools, implements, cutlery, spoons and forks, of base metal; parts thereof of base metal	4.0	4.0	4.0	4.0	4.0	5.3	4.0	4.0	6.0	4.4
83	Miscellaneous articles of base metal	3.9	4.0	4.0	4.0	3.9	3.8	4.0	3.9	5.2	4.1
84	Nuclear reactors, boilers, machinery and mechanical appliances; parts thereof	3.6	4.0	4.0	4.0	4.0	3.6	4.0	3.5	4.0	3.9
85	Electrical machinery and equipment and parts thereof; sound recorders and reproducers, television image and sound record	3.9	4.0	4.0	4.0	3.9	3.6	4.1	3.5	3.8	3.9
86	Railway or tramway locomotives, rolling-stock and parts thereof; railway or tramway track fixtures and fittings and part	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.5	4.1
87	Vehicles other than railway or tramway rolling-stock, and parts and accessories thereof	4.0	4.0	4.0	4.0	4.0	3.4	4.0	4.0	5.3	4.1
88	Aircraft, spacecraft, and parts thereof	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	3.3	3.9
89	Ships, boats and floating structures	4.0	4.0	4.0	4.0	3.9	4.0	6.0	4.0	5.4	4.4
90	Optical, photographic, cinematographic, measuring, checking, precision, medical or surgical instruments and apparatus; p	3.7	4.0	4.0	4.0	4.0	3.4	4.0	3.4	3.8	3.8
91	Clocks and watches and parts thereof	3.9	4.0	4.0	4.0	4.0	4.0	4.0	3.9	5.8	4.2
92	Musical instruments; parts and accessories of such articles	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.4	4.2
93	Arms and ammunition; parts and accessories thereof	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.9	4.2
94	Furniture; bedding, mattresses, mattress supports, cushions and similar stuffed furnishings; lamps and lighting fittings	4.0	4.0	4.0	3.7	4.2	4.0	4.3	4.0	4.9	4.1
95	Toys, games and sports requisites; parts and accessories thereof	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.2	4.1
96	Miscellaneous manufactured articles	3.8	4.0	4.0	3.8	4.0	4.0	4.0	3.9	5.6	4.1
97	Works of art, collectors' pieces and antiques	4.0	4.0	4.0	4.0	4.0	4.0	6.0	4.0	6.0	4.4

## APPENDIX B – SURVEY SAMPLE

The Nextrade Group survey included 410 firms from Indonesia; Malaysia; the Philippines; and Thailand and was fielded between February 11-14, 2025, using the online survey platform Pollfish. Eight percent of the surveyed firms were microenterprises with between 1 and 10 employees, 30 percent were small enterprises with between 11 and 50 employees, 59 percent were medium enterprises with between 51 and 250 employees, and two percent were large firms with more than 250 employees. The surveyed firms are from six main industries with considerable exports from the ASEAN: tin-related products; wood products; machinery, vehicles and appliances; ceramic products; plastics products and chemicals; and textiles and apparel.

The use of an online survey allowed for a broader scope and faster data collection compared to traditional survey methods, which require creating a sample frame of firms in an economy and then randomly selecting firms for computer-assisted telephone interviews (CATI) or face-to-face meetings. Firms responded to the survey directly from their devices, which facilitated the survey process. The survey was fielded as a random sample. Quality control practices included respondent verification, trap questions designed to identify distracted participants and the use of manually vetted publishers to send unique IDs as an added layer of protection.

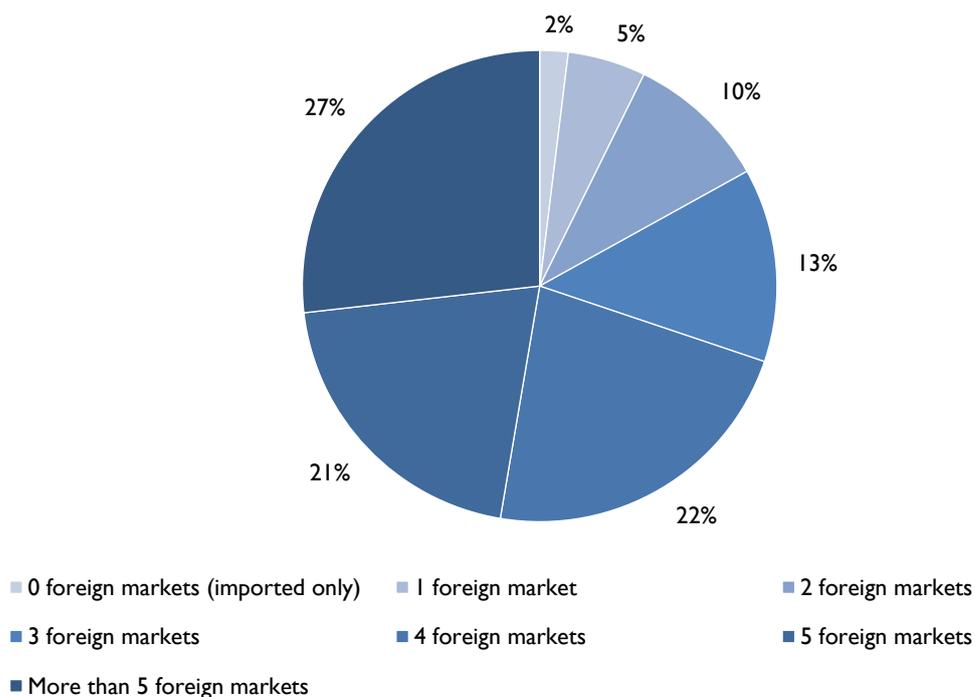
**Figure B-1 Sectors, by economy**



**Figure B-2 Size of firm, by economy**



**Figure B-3 Number of foreign markets sold to in 2024**



<sup>1</sup> To be sure, Felbermayr et al. (2019) argue that trade deflection is not profitable due to transport costs and thus the use of ROO can be futile.

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<sup>2</sup> See, for example Wignaraja (2014) vs. Legge and Lukaszuk (2024).

<sup>3</sup> The HS is divided into 21 sections, each representing a broad category of goods, which are further subdivided into 99 chapters. Each chapter contains specific headings and subheadings that classify products in increasing detail. Trade agreements often have specific rules of origin at the chapter (2-digit), heading (4-digit), or subheading (6-digit) levels, depending on the complexity and specificity required for the product.

<sup>4</sup> See, for example, Suominen (2004).

<sup>5</sup> As also identified in a 2009 IADB survey of Latin American firms' use of PTAs in the Americas, divergence in product-specific ROO across PTAs (such as wide variation in ROO across Mexico's PTAs) can make exporter MSMEs to specialize in exporting to one PTA partner market at the exclusion of other PTA markets. See Estevadeordal et al. (2009).

<sup>6</sup> Restrictive ROO in final products have been found to divert trade to the PTA region in intermediate products, by forcing final product producers to use inputs originating from the PTA region, even if extra-regional inputs were cheaper or of higher quality (Suominen 2004). Thus we can also expect that MSMEs that are making and exporting final products would be harder-pressed to qualify for PTA preferences in markets where ROO on final products is more restrictive.

<sup>7</sup> [https://www.customs.go.jp/kyotsu/kokusai/toukei/index\\_e.htm](https://www.customs.go.jp/kyotsu/kokusai/toukei/index_e.htm)

<sup>8</sup> For Japan's tariffs, see <https://www.trade.gov/country-commercial-guides/japan-import-tariffs>

<sup>9</sup> For Japan's tariffs, see <https://www.trade.gov/country-commercial-guides/japan-import-tariffs>

<sup>10</sup> See Tanaka (2011).

<sup>11</sup> See, for example, Suominen (2004), Estevadeordal et al. (2007), Hayakawa (2014), and WTO (2022).

<sup>12</sup> See <https://findrulesoforigin.org/en/home/compare?reporter=036&partner=608&product=39262021>

<sup>13</sup> Lacerda Coutinho, Gustavo, and Jorge Eduardo de Schoucair Jambreiro Filho. 2018. "Brazil's New Integrated Risk Management Solutions." *WCO News* 86. <https://mag.wcoomd.org/magazine/wco-news-86/brazils-new-integrated-risk-management-solutions/>.

<sup>14</sup> Lacerda Coutinho, Gustavo, and Jorge Eduardo de Schoucair Jambreiro Filho. 2018. "Brazil's New Integrated Risk Management Solutions." *WCO News* 86. <https://mag.wcoomd.org/magazine/wco-news-86/brazils-new-integrated-risk-management-solutions/>.

<sup>15</sup> The test moved the data requested by two CBP forms onto blockchain, enabling near-instant communications between the CBP and the trade community and receipt of files. See Anger (2019). See also US Customs and Border Protection Trade Transformation Office (2019).

<sup>16</sup> US Customs and Border Protection Trade Transformation Office (2019).