
World Trade Organization
Economic Research and Statistics Division

**Provisions on Electronic Commerce in
Regional Trade Agreements**

José-Antonio Monteiro and Robert Teh

Manuscript date: June 2017

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PROVISIONS ON ELECTRONIC COMMERCE IN REGIONAL TRADE AGREEMENTS

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ABSTRACT: This paper reviews the different types of provisions explicitly addressing electronic commerce (e-commerce) in regional trade agreements (RTAs). The analysis covers the 275 RTAs currently in force and notified to the WTO as of May 2017. The analysis shows that e-commerce provisions have become increasingly more detailed but remain highly heterogeneous. The most common types of e-commerce provisions refer to the promotion of e-commerce, cooperation activities and the moratorium on customs duties. Other e-commerce provisions concern the domestic legal framework as well as more specific issues, such as electronic authentication, consumer protection, personal information protection and paperless trading.

KEYWORDS: Regional Trade Agreements, Electronic Commerce, E-commerce.

JEL CLASSIFICATIONS: F13, F15

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INTRODUCTION

In the last 30 years, technological advancements in information and telecommunication technologies (ICT), including access to the Internet, have significantly impacted the way in which goods, services and information are bought, sold and exchanged, by bringing electronic or digital markets and platforms into being. The digital transmissions that underlie electronic commerce (e-commerce) transactions recognize no borders making e-commerce markets essentially global and borderless. Recent academic research has shown that e-commerce reduces transaction or trade costs by a substantial margin (Freund and Weinhold, 2004; Clarke, 2008; Hortaçsu et al, 2009; Ahn et al, 2011; and Lendle et al, 2016). In effect, e-commerce shrinks the distance between buyer and seller — by nearly a third according to Lendle et al (2016). This enables not only more trade to occur but also to connect the previously unconnected to the global market place.

While digital technology might shrink distance and make markets connected through e-commerce borderless, policy can introduce frictions for a variety of reasons, some more legitimate or defensible (privacy, consumer protection or national security concerns) than others (protectionism or promoting domestic champions). But policy differences can be the subject for discussion by sovereign nations and cooperative solutions, like having common rules on cross-border e-commerce, can be found to produce mutually beneficial outcomes.

As a consequence, e-commerce has been introduced into the agenda of trade policy makers. In the World Trade Organization (WTO), a work programme on e-commerce was established in 1998 in order to examine all trade-related issues relating to global e-commerce, including those relating to the development of the infrastructure for e-commerce.² The work programme is cross-cutting in nature covering aspects of e-commerce related to trade in services, trade in goods, intellectual property and economic development. WTO Members also agreed to the practice of not imposing customs duties on electronic transmissions, a commitment that has been renewed at each WTO Ministerial Conference since.

In parallel to the discussion held in the WTO, an increasing number of regional trade agreements (RTAs) have incorporated specific provisions related to e-commerce. This may stem in part from a perception that the work programme on e-commerce has made no substantive progress in the WTO since its adoption in 1998.³ This may however be an unfair assessment since the work programme was not mandated to conduct rulemaking. But fairly or not, given the perception of stasis, explicit international rule making on e-commerce has migrated to RTAs. This is not necessarily an unhealthy outcome as multilateral and bilateral or regional cooperation on e-commerce can complement one another. This paper reviews the different types of provisions explicitly addressing e-commerce in RTAs. Unlike other papers which have analysed e-commerce provisions in RTAs⁴, this study is the first one to provide a comprehensive quantitative analysis by analysing the 275 RTAs currently in force and notified to the WTO as of May 2017. It hopes to contribute to the growing literature that systematically maps RTA rules in various trade areas using different analytical approaches (a partial list includes Alschner et al, 2017; Hofmann, et al , 2017; Monteiro, 2016a; Monteiro, 2016b; Chauffour and Maur, 2011; Horn et al, 2009; Estevadeordal et al, 2009).

There are 75 notified RTAs that explicitly address e-commerce. Similar to other issues covered in RTAs, these provisions remain highly heterogeneous addressing various issues ranging from customs duties and non-discriminatory treatment to domestic regulatory framework, electronic signatures, consumer protection, data protection, paperless trading and unsolicited or undesired electronic messages. The rest of the paper is outlined as follows. Section 2 presents the methodology used to identify e-commerce provisions in RTAs. Section 3 presents an overview of the evolution of e-commerce provisions in RTAs. Section 4 discusses the structure and location of e-commerce provisions. Section 5 reviews in details the typology of e-commerce provisions included in notified RTAs, while section 6 discusses imminent types of e-commerce provisions in recent RTAs that have yet to be notified to the WTO. Finally, section 7 concludes.

² The WTO work programme on e-commerce specifies that exclusively for the purposes of the work programme, and without prejudice to its outcome, the term "electronic commerce" is understood to mean the production, distribution, marketing, sale or delivery of goods and services by electronic means.

³ See Weber (2015).

⁴ See Herman (2010) or Rolland (2016).

METHODOLOGY

An important objective of this study is to establish a comprehensive typology of provisions related to e-commerce included in RTAs. The analysis covers the 275 RTAs currently in force that have been notified to the WTO between 1957 and May 2017 under Article XXIV (Territorial Application – Frontier Traffic – Customs Unions and Free-trade Areas) of the General Agreement on Tariffs and Trade (GATT-1994), the Enabling Clause (Decision on Differential and More Favourable Treatment, Reciprocity and Fuller Participation of Developing Countries), Article V (Economic Integration) of the General Agreement on Trade in Services (GATS) or the Transparency Mechanism for Regional Trade Agreements.⁵ The analysis is based not only on the main text of the RTAs but also side documents, such as protocols, annexes, communication letters, and other documents associated with the RTAs.

Unless specified otherwise, e-commerce provisions are defined as any provisions explicitly mentioning and referring to e-commerce. The following keywords have been used to identify e-commerce provisions: computerized, cyber, digital, electronic, electronic commerce, e-commerce, e-government, information and communication, ITC, internet, online, paperless and telecommunication.⁶ Besides these explicit provisions, there are many other provisions in RTAs potentially relevant to e-commerce, even though they do not make explicit reference to e-commerce. In addition, there are other provisions that can be relevant to e-commerce related to telecommunications, electronic government procurement, financial services and copyright infringement, including trademark protection and domain names on the Internet. Unless specified otherwise, these types of provisions are, outside the scope of the analysis.

OVERVIEW OF E-COMMERCE PROVISIONS

The inclusion of provisions referring explicitly to e-commerce is not a recent phenomenon. The very first e-commerce provision is found in an article on paperless trading included in the 2001 RTA between New Zealand and Singapore.⁷ The article specifies that the parties shall have in place, in accordance with the Asia-Pacific Economic Cooperation's (APEC) blueprint for action on electronic commerce, an electronic environment supporting electronic business application between their customs administrations and trading community. The issue of paperless trading was also the object of a specific chapter in the 2002 RTA between Japan and Singapore establishing cooperation commitments as well as a joint committee. The agreement also identifies the promotion of e-commerce as an area of cooperation in the field of ICT. That same year, the first ever specific article on e-commerce was incorporated in the RTA between the United States and Jordan. Two years later, the RTA between Australia and Singapore was the first agreement to ever address e-commerce in a dedicated chapter. Over the years, the number of RTAs with specific e-commerce provisions has increased relatively continuously. As highlighted in Figure 1, e-commerce provisions can be found in 75 RTAs, representing 27% of all the RTAs notified to the WTO and currently in force as of May 2017.⁸ This increasing number of RTAs with e-commerce provisions is in line with the growing discussions on the role of e-commerce and digital economy in the policy agenda of many regional and multilateral forums and organisations.

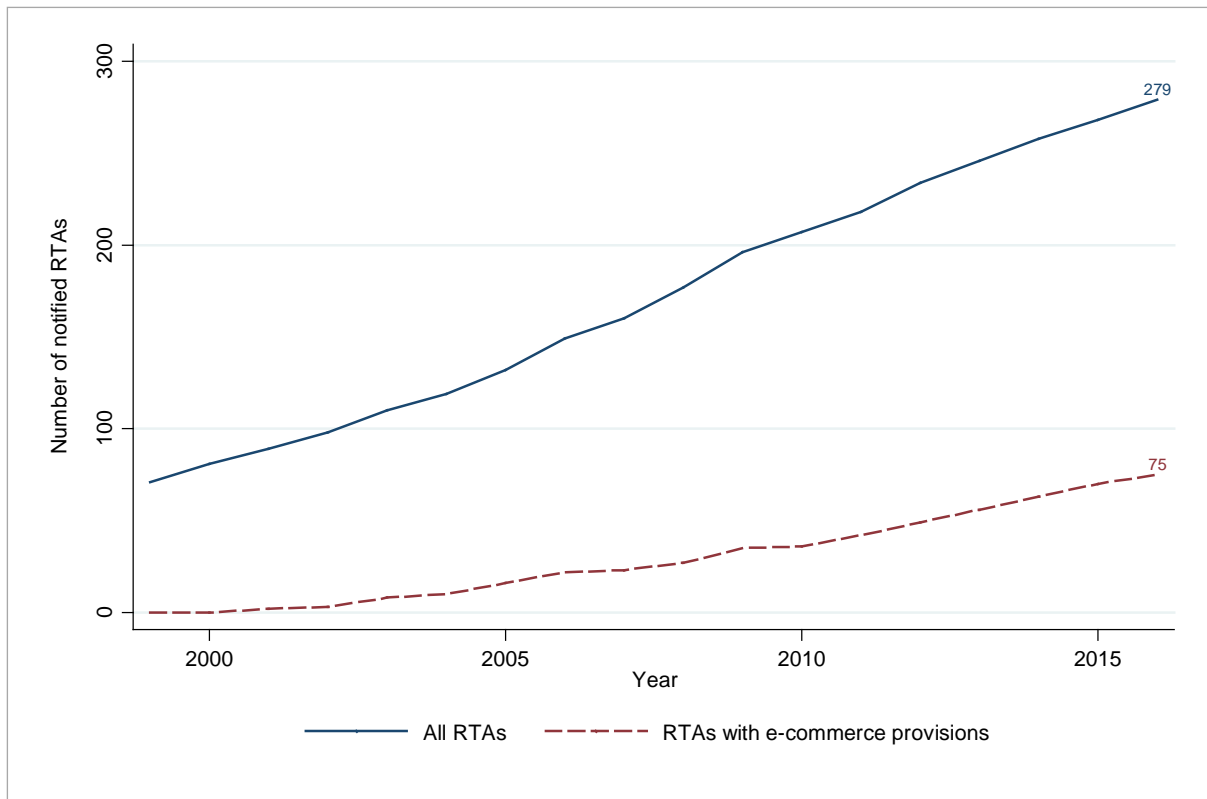
⁵ The WTO's RTA database (<http://rtais.wto.org>) contains detailed information on all the RTAs notified to the GATT/WTO.

⁶ The French and Spanish translations of these keywords have also been used.

⁷ The 2001 council decision on the agreement between the EU and the overseas countries and territories (OCT), which was later replaced by a 2013 council decision, also included a cooperation provision on e-commerce committing the EU to support the efforts deployed by the OCT public and private actors in the field of information technology and telecommunications to increase e-commerce.

⁸ This figure does not include the RTAs to which the EU is a party with Cameroon, Côte d'Ivoire, Ghana and the Southern African Development Community (SADC) states, because the only provision referring explicitly to e-commerce is the pledge to endeavour to conclude an agreement addressing trade in services and e-commerce, among other areas.

Figure 1: Evolution of RTAs with e-commerce provisions

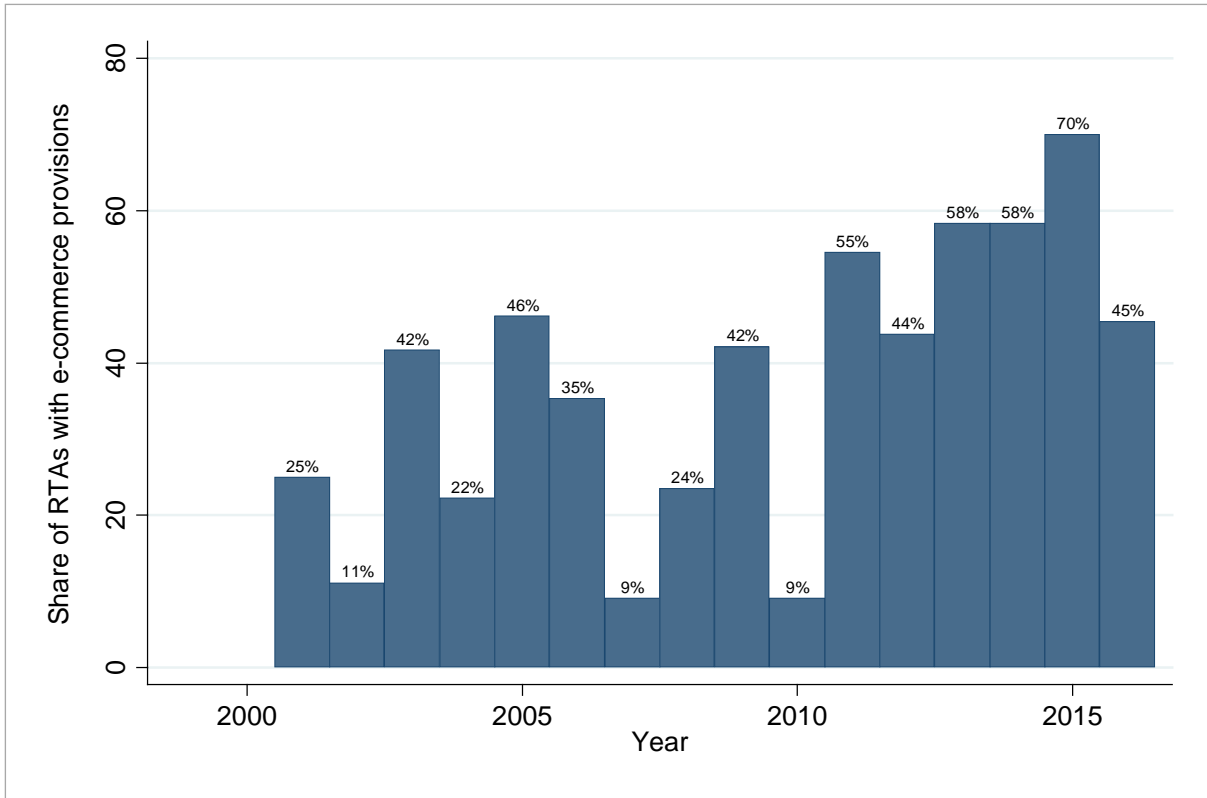


Source: Computations based on WTO RTA database.

Although the number of RTAs incorporating specific e-commerce provisions remains limited, the last four years have witnessed a significant increase in the number of agreements with such provisions. As shown in Figure 2, e-commerce provisions are, on average, included in more than 60% of all the RTAs that entered into force between 2014 and 2016. This rise in the total number of RTAs with e-commerce provisions is driven by the surge in RTAs involving developing countries. As of May 2017, 63% and 33% of the RTAs incorporating e-commerce provisions were agreements negotiated, respectively, between developed and developing countries (47 North-south RTAs) and between developing countries (25 South-South RTAs). Only three RTAs negotiated between developed countries incorporate e-commerce provisions.

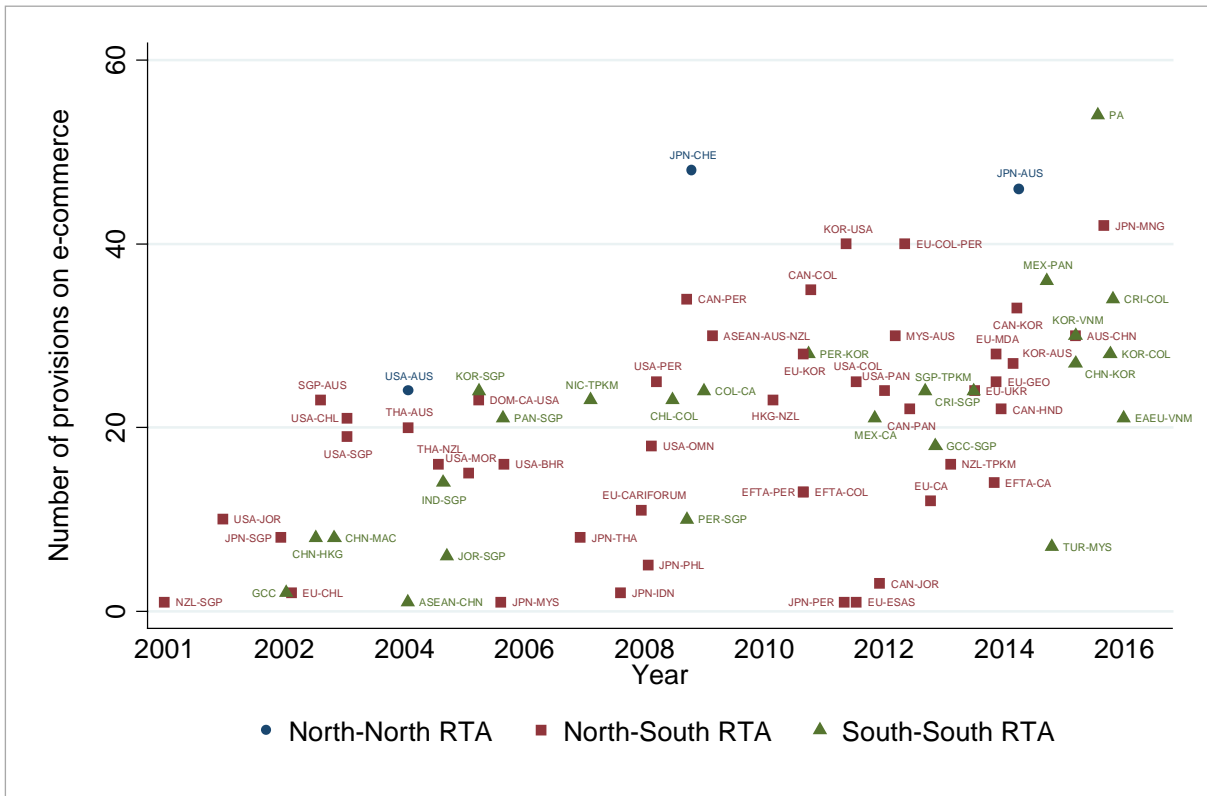
Besides the increasing number of RTAs with e-commerce provisions, the number and level of details of these e-commerce provisions have also increased significantly over the years. As shown in Figure 3, as of May 2017, the Additional Protocol to the Framework Agreement of the Pacific Alliance, negotiated by Chile, Colombia, Mexico and Peru, incorporate the highest number of e-commerce provisions. In particular, the first Protocol Amending the Additional Protocol to the Framework Agreement includes amendments and new provisions to the chapter on e-commerce initially established. The RTAs to which Japan is a party with Switzerland, Australia and Mongolia also incorporate a relatively high number of e-commerce provisions. Other RTAs with many e-commerce provisions involve mainly Australia, Canada, Chile, Colombia, the Republic of Korea, Peru and the United States, as depicted in Figure 4.

Figure 2: Percentage of RTAs with e-commerce provisions



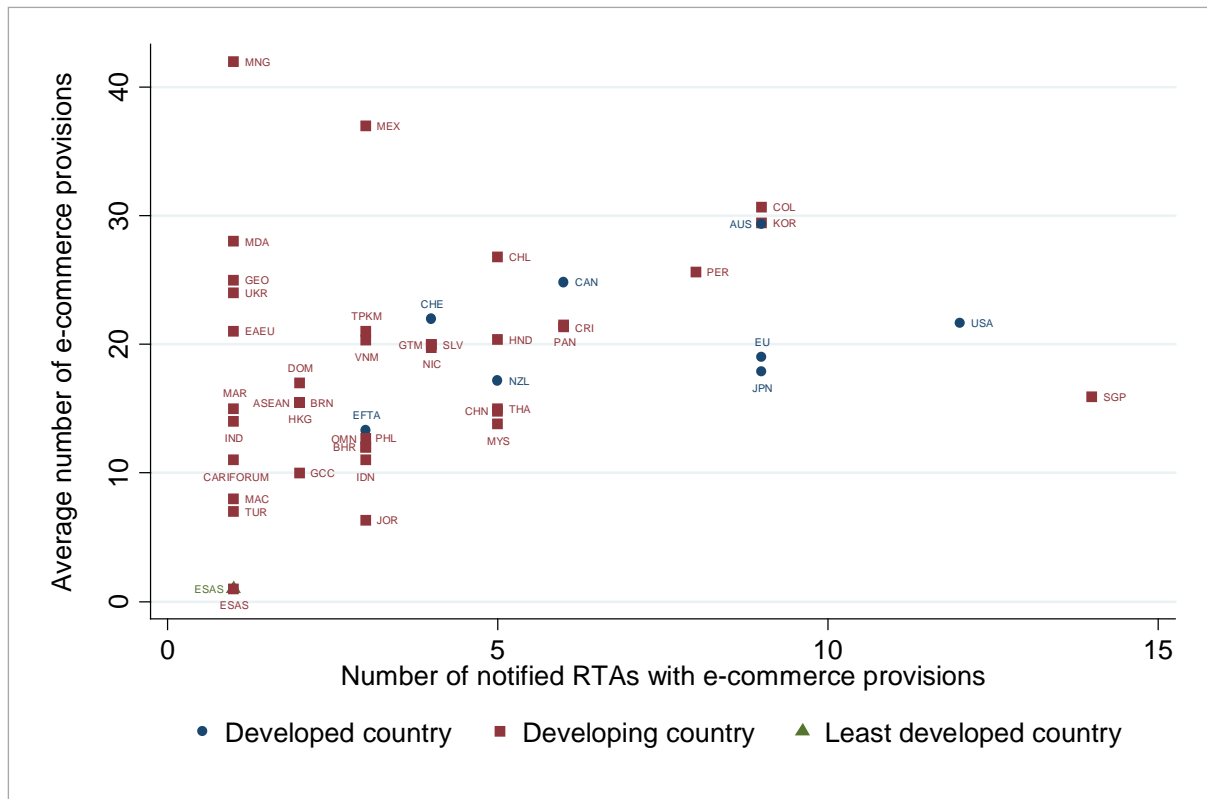
Source: Computations based on WTO RTA database.

Figure 3: Evolution of the number of e-commerce provisions in RTAs



Source: Computations based on WTO RTA database.

Figure 4: Number of RTAs with e-commerce provisions by country



Source: Computations based on WTO RTA database.

More importantly, the inclusion of e-commerce provisions in RTAs is a dynamic process. The decision to include e-commerce provisions can change over time and depends also on the countries that take part in the negotiations. As shown in Figure 5, a majority of countries having signed RTAs with e-commerce provisions in the last eight years (2009-2016) have, on average, incorporated a greater number of e-commerce provisions compared to their RTAs negotiated before 2009. Japan, Canada and Switzerland are the developed countries, whose average number of e-commerce provisions has increased the most since 2009. Similarly, Chile followed by Mexico, Thailand and China are the developing countries, which have increased the most the average number of e-commerce provisions in their respective RTAs.

Analysing heterogeneity of e-commerce provisions in RTAs

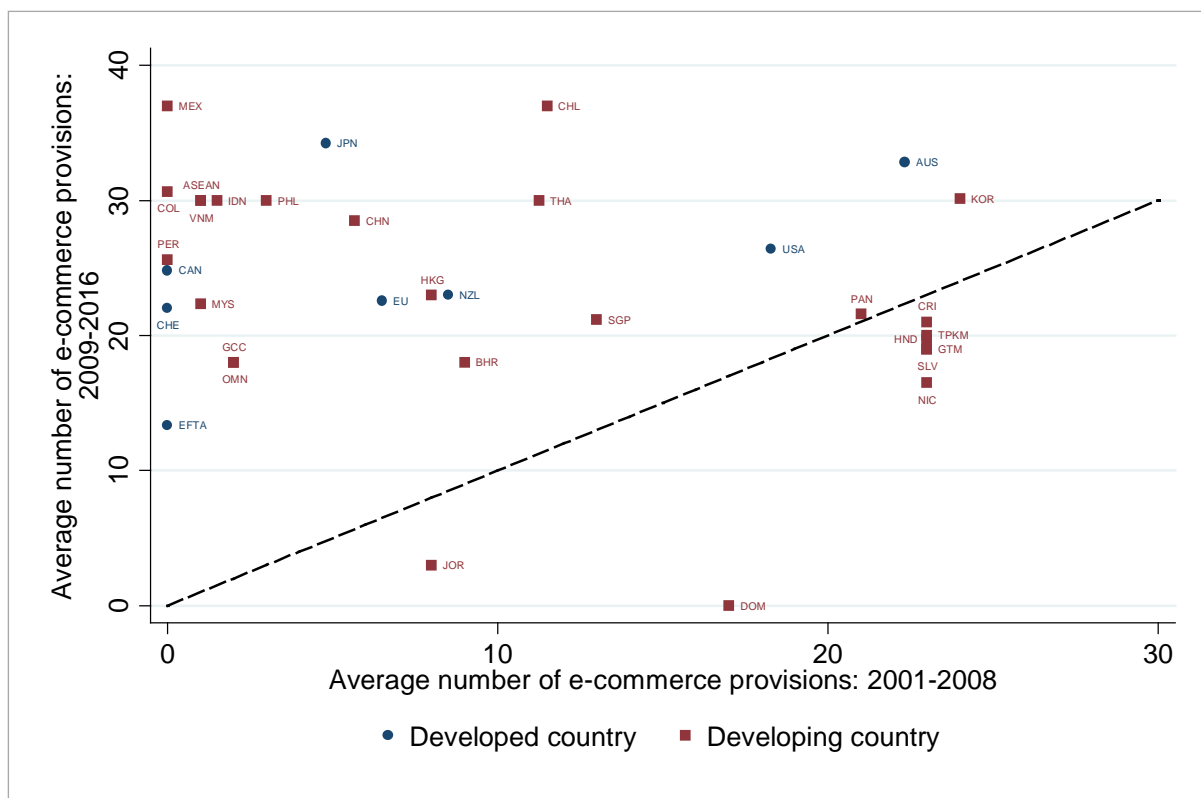
To further analyse the heterogeneity of the e-commerce provisions in RTAs, two approaches are employed. The first approach measures the degree of similarity in the e-commerce provisions between any pair of RTAs by calculating their Jaccard index (Jaccard, 1912). The index compares the e-commerce provisions in two RTAs to see which elements are shared and which are distinct. The closer the value of the index is to one (zero), the more (less) both RTAs include the same types of provisions.

Annex 1 shows the histogram or distribution of the Jaccard index for those RTAs with e-commerce provisions. Since the Jaccard index is a bilateral measure and there are 75 RTAs with e-commerce provisions, there will be exactly 2,775 possible pairs and calculated indices.⁹ As can be seen from the histogram, nearly 800 of the calculated Jaccard indices, close to a third of the total, range from 0 to 0.03. Furthermore, almost 80% of the indices fall below 0.2. Annex 2 further shows that the level of similarity tends to increase with the number of common e-commerce provisions but this positive relationship tends to slow down beyond 10 common provisions.

⁹ If there are n elements to be taken k at a time, where the order of the k elements is not important, the number of possible combinations is given by: $\binom{n}{k} = \frac{n!}{k!(n-k)!}$. Given that $n = 75$ and $k = 2$, there will be 2,775 possible combinations.

The second approach is to use network graphical analysis which has become a favoured tool for investigating networks in many fields of knowledge, including social sciences.¹⁰ Figure 6 represents the universe of notified RTAs with e-commerce provisions and their level of similarity with each other by income group. The North-North RTAs are represented by the green circles, the North-South RTAs by the purple circles and the South-South RTAs by light blue circles. The size of the circle associated with each RTA represents the number of e-commerce provisions. The width of the edge connecting any two RTAs measures the number of similar provisions between them.¹¹ The opacity of the edge captures the level of similarity measured by the Jaccard index. The larger and more opaque the edge connecting any two RTAs, the larger and more similar e-commerce provisions in both RTAs.

Figure 5: Evolution of the average number of e-commerce provisions by country



Source: Computations based on WTO RTA database.

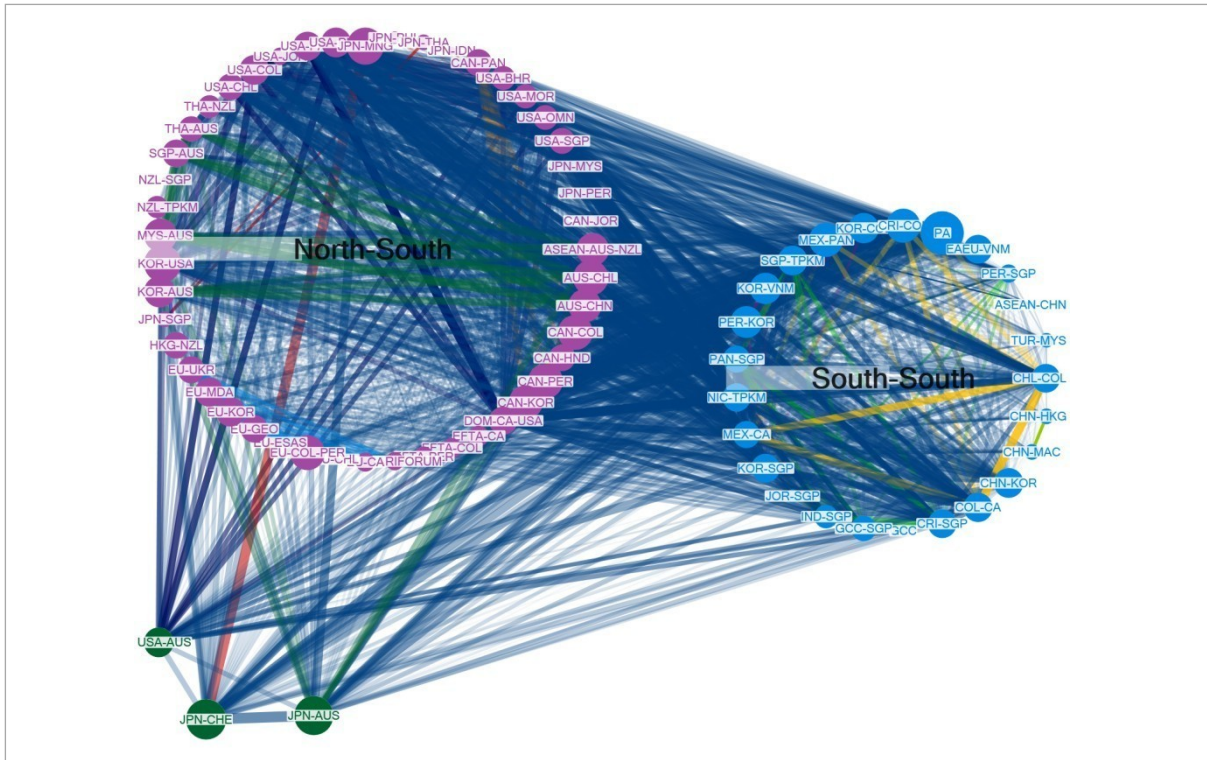
As confirmed by Figure 6, each RTA with e-commerce provisions shares at least one common e-commerce provision with another agreement. Even though the level of similarity between agreements is higher for some pairs of RTAs, it tends to be much lower for the vast majority of RTA pairs. For instance, the RTA between Canada and Colombia shares 38 common e-commerce provisions – the highest number of common provisions among any pair of RTAs – with the RTA between Canada and Peru, but only one common provision with the RTA between New Zealand and Chinese Taipei and none with the RTA between the European Union (EU) and Chile. As noted above, the level of similarity tends to increase with the number of common e-commerce provisions although this positive relationship tends to slow down beyond 10 common provisions.¹² Overall, the average number of common e-commerce provisions between RTAs is relatively low, with just six common provisions.

¹⁰ See Borgatti et al (2009) for a short history of how network analysis became a more widely used tool in the social sciences.

¹¹ In order to make the figures visually readable, the ratio between the size of the circle and the width of the edges has been adjusted so they are no longer proportional.

¹² See Annexes 1 and 2 for further details.

Figure 6: Similarity of e-commerce provisions in RTAs by income group

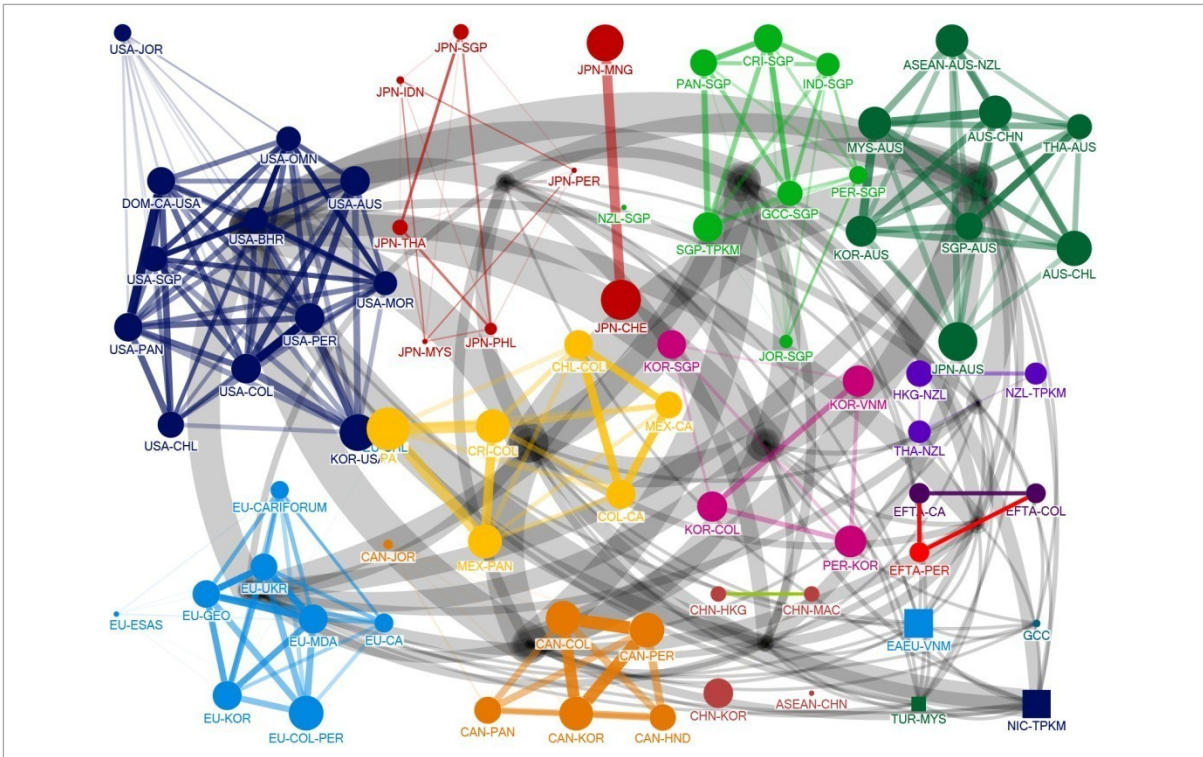


Source: Computations based on WTO RTA database.

Note: The size of the circle associated with each RTA represents the number of e-commerce provisions. The width of each edge measures the number of similar provisions between two RTAs, while the opacity of each edge captures the level of similarity (measured by the Jaccard index).

Even in RTAs negotiated by the same country, e-commerce provisions vary significantly. Figure 7 represents the universe of RTAs grouping them by country most active in negotiating RTAs with e-commerce provisions. These "hubs" include Australia, Canada, China, the European Free Trade Association (EFTA) states, the EU, Japan, Latin American countries (Colombia and Mexico), the Republic of Korea, New Zealand, Singapore and the United States. As in Figure 6, the size of the figure (circle or square) associated with each RTA measures the number of e-commerce provisions, while the width and opacity of the edges connecting the RTAs represent, respectively, the number of common e-commerce provisions and their level of similarity, measured by the Jaccard index. As highlighted by Figure 7, only a handful of countries, such as Australia, Canada, the EFTA states and the United States have negotiated relatively similar types of e-commerce provisions in their respective RTAs. For instance, the RTAs to which the United States is a party include on average 12 common e-commerce provisions. There are however still important differences in similarity between these RTAs, even in those having a relatively similar number of provisions, such as the US RTAs negotiated with Colombia, Panama and the Dominican Republic and Central America.

Figure 7: Similarity of e-commerce provisions in RTAs by country group



Source: Computations based on WTO RTA database.

Note: The size of the shape associated with each RTA represents the number of e-commerce provisions. The width of each edge measures the number of similar provisions between two RTAs, while the opacity of each edge captures the level of similarity (measured by the Jaccard index).

Conversely, other countries, such as China, the EU and Japan, have significantly changed their approach to e-commerce in RTAs over the years. In recent years, the number of e-commerce provisions included in their RTAs and their level of similarity have increased substantially. For instance, while the Japanese RTAs include on average three common e-commerce provisions, the most recent agreements negotiated with Switzerland and Mongolia share 29 e-commerce provisions in common. A similar pattern applies to the RTAs to which the EU is a party. This heterogeneity of e-commerce provisions in RTAs negotiated by the same countries foreshadows the difficulty in identifying strong commonalities in e-commerce provisions across agreements.

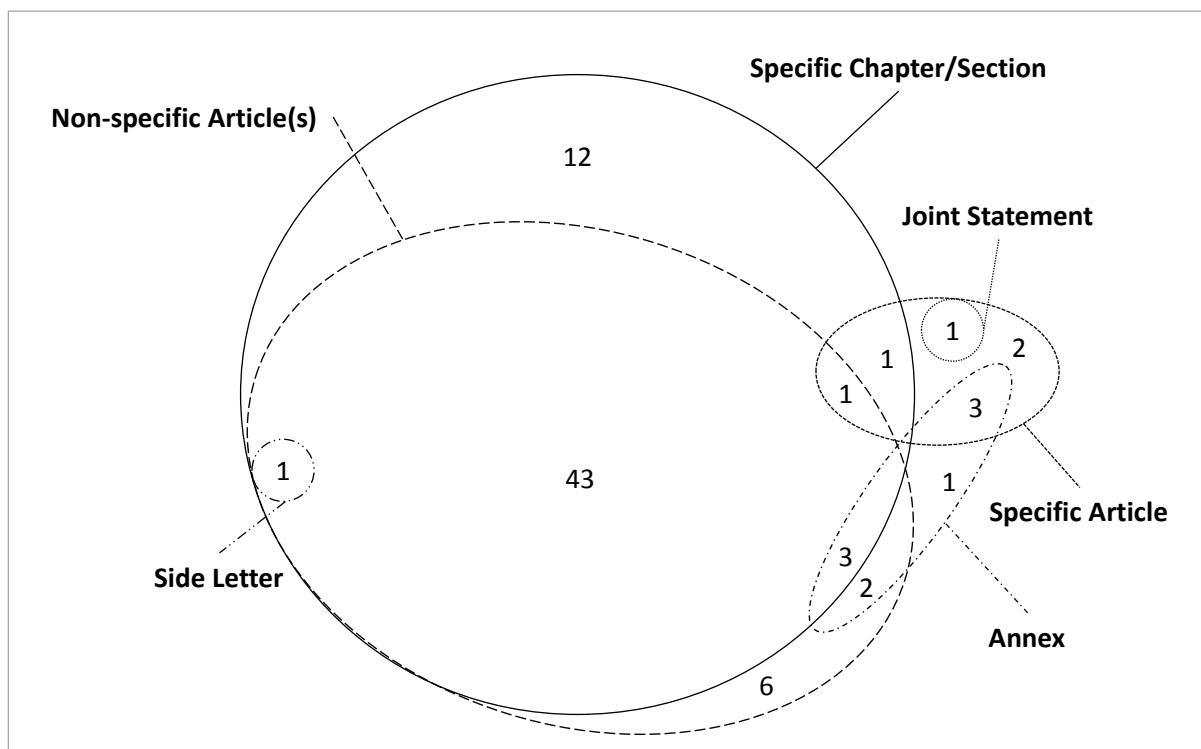
That being said, Figure 7 confirms also the existence of similarities between RTAs negotiated by different "hubs", represented by the grey-coloured links. The width of these links captures the relative number of similar provisions between "hubs". Overall, e-commerce provisions adopted in US and Australian RTAs tend to be found more in other RTAs, than provisions established in Japanese or EU RTAs. Part of the relative high degree of similarity in e-commerce provisions between two "hubs" is due to the fact that some of the countries that have negotiated e-commerce provisions with the United States and Australia, such as the Colombia, the Republic of Korea and Singapore, have later concluded RTAs with other countries, highlighting once again the dynamic nature of most e-commerce provisions.

STRUCTURE AND LOCATION OF E-COMMERCE PROVISIONS

Similar to other issues covered by RTAs, e-commerce provisions can be incorporated in the main text of the RTA in a non-specific article to e-commerce or in an article or chapter/section dedicated to e-commerce. E-commerce provisions can also be found in side documents, such as joint statements, letters or annexes. The structural forms of e-commerce provisions can vary substantially between RTAs, even among those negotiated by the same country. Out of the 75 RTAs with e-commerce provision, 61 RTAs have established a chapter dedicated to e-commerce. In eight RTAs, e-commerce provisions are included in a specific article on e-commerce. Another common form of e-commerce provisions is an article listing an issue or a broad range of issues, including e-commerce as a particular case. For instance, a large number of RTAs include an article on general exceptions specifying that the e-commerce chapter is covered by such general exceptions. Besides the main text of the RTA, e-commerce provisions are also found in the annex of nine RTAs as well as in a joint statement on e-commerce and an exchange of side letters confirming the parties' views regarding the discussions relating to e-commerce and specific e-commerce provisions set out in the RTA.

As shown in Figure 8, the structure and location of e-commerce provisions are not necessarily mutually exclusive. Many RTAs include e-commerce provisions in a specific chapter on e-commerce as well as in non-specific articles. The RTAs between the Gulf Cooperation Council (GCC) states and Singapore and between the United States and the Republic of Korea are the only notified agreements to include both a chapter on e-commerce and a specific article on e-commerce in the chapter on cooperation. The RTA between the United States and the Republic of Korea further include a confirmation letter on the access to and use of the Internet. The RTA between the United States and Jordan is also the only notified agreement to include a specific article on e-commerce, which refers to some principles announced in a side joint statement on e-commerce. The RTAs to which the EFTA states are a party with Central America, Colombia and Peru have the particularity of including a specific article on e-commerce, but also an annex referring to this article and detailing various provisions. Similarly, the agreements negotiated by China with Hong Kong, China and Macao, China include an article identifying electronic business as an area of cooperation among other areas and an annex specifying the mechanism and content of cooperation activities.

Figure 8: Structure of e-commerce provisions in RTAs



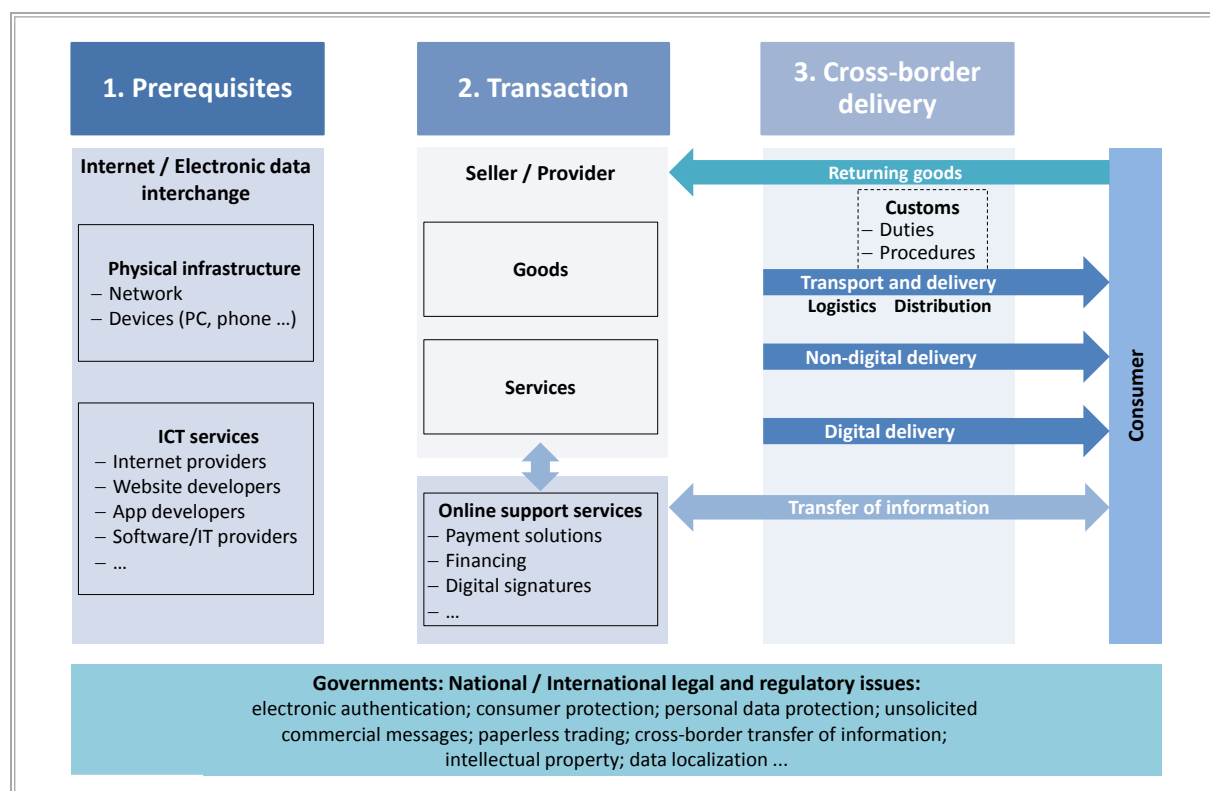
Source: Computations based on WTO RTA database.

Note: Proportions in the figure not respected.

MAIN TYPES OF E-COMMERCE PROVISIONS

In order to provide some perspective on the coverage of e-commerce provisions that will be examined in Section 3, it is useful to consider Figure 9 below, representing the universe of building blocks that relates to or supports e-commerce. It includes the physical infrastructure (e.g. telecommunication system), domestic regulatory system (e.g. consumer protection), support services systems (e.g. payments, logistics and express delivery) and border regulations (e.g. duties, trade procedures) that are involved in any e-commerce (or digital) transaction but particularly cross-border ones. International rulemaking on e-commerce, whether it takes place at the multilateral or regional level, can in principle touch on any of these elements. In many instances though, some of these commitments will be found in different chapters or parts of trade agreements. For instance, RTA commitments on telecommunications services are found in the services chapters of the agreement and not in the e-commerce provisions. Tariff reduction schedules on products, which can be sold to consumers in e-commerce platforms or to businesses in electronic data interchanges, are found in the goods schedules. RTA commitments on trade facilitation, which cover trade procedures, can be found not only in the e-commerce provisions but also in the trade facilitation section of the RTA. What the e-commerce provisions have tended to focus on are: general principles such as non-discrimination and transparency; commitment on customs duties; instilling greater confidence in consumers to use e-commerce through disciplines on consumer protection, privacy of information and unsolicited electronic messages; facilitating more cross-border e-commerce transactions through paperless trading and development of a framework for electronic authentication; and promoting cooperation among RTA parties on e-commerce.

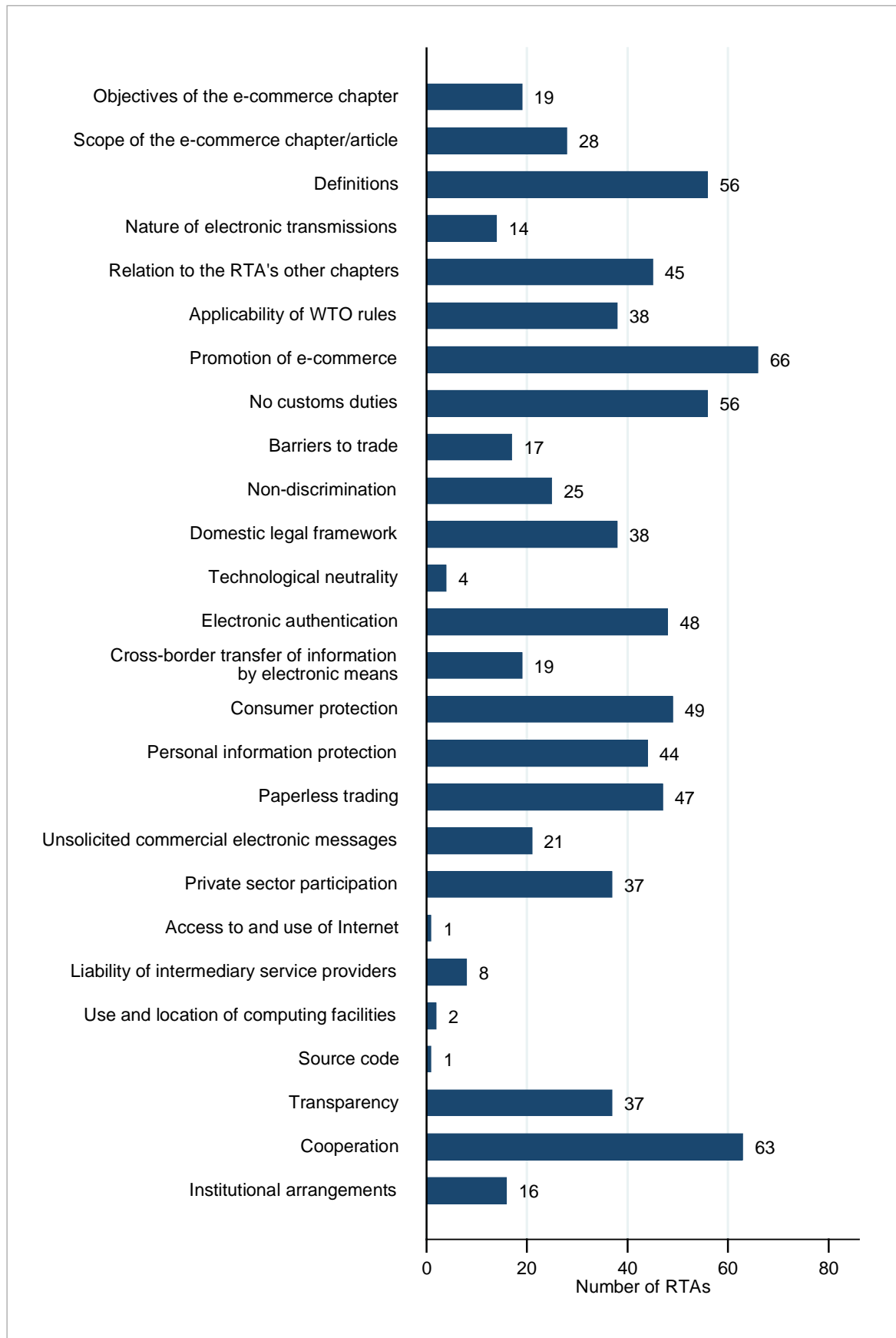
Figure 9: Mapping e-commerce issues



Source: Adapted from Santana (2017).

As highlighted above, most e-commerce provisions are highly heterogeneous. Part of this heterogeneity stems from the language used but also from the issues covered by these provisions. As shown in Figure 10, 25 main types of provisions related to e-commerce have been identified. As explained above, many of these types of provisions aim at promoting e-commerce through trade rules, domestic regulation and cooperation activities. Other types of provisions refer to the definitions of specific terms, define the scope of the provisions and specify their relation with respect to other chapters and provisions included in the RTA. The next-subsections comprehensively examine each of the main types of e-commerce provisions identified.

Figure 10: Main types of provisions related to e-commerce

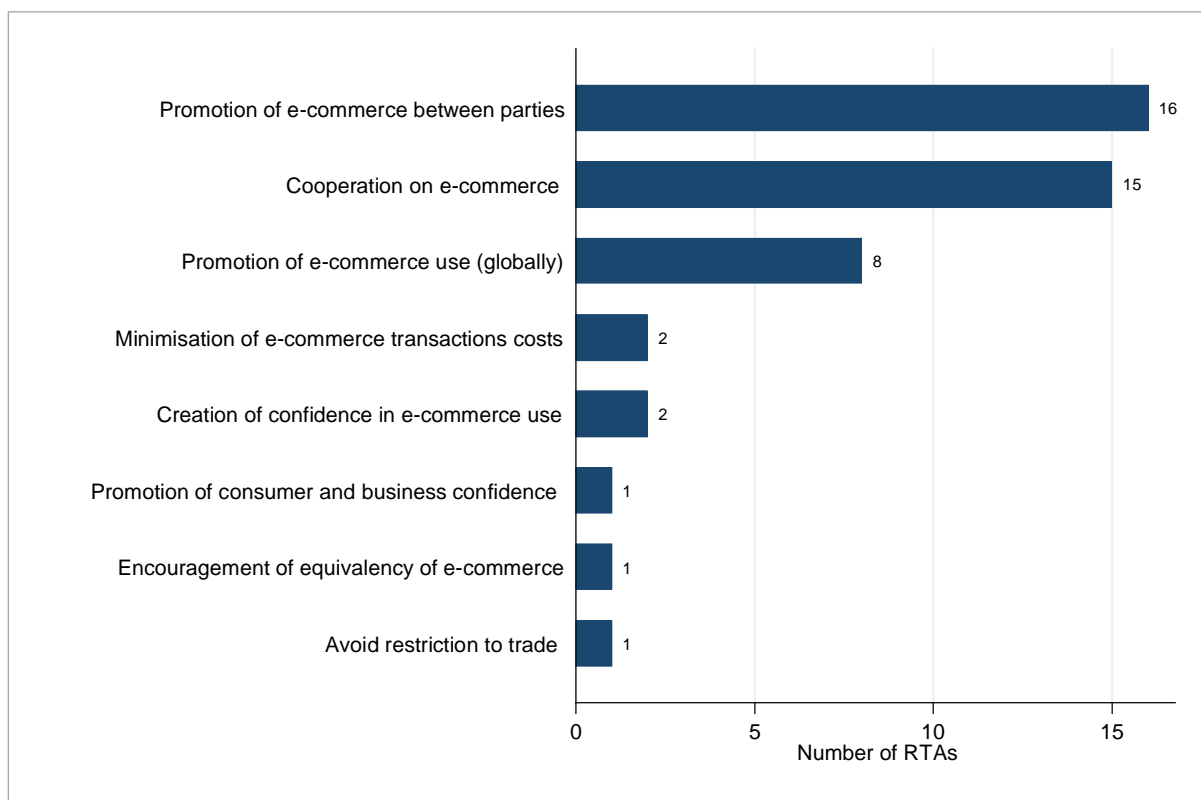


Source: Computations based on WTO RTA database.

Objectives of the chapter on e-commerce

A limited number of RTAs with a dedicated chapter on e-commerce, namely 19 agreements, include provisions stating explicitly the objective(s) of the chapter on e-commerce.¹³ As highlighted in Figure 11, the most common objectives of the e-commerce are to promote e-commerce between the parties, cooperation and the wider use of e-commerce globally. Other objectives, such as creating an environment of trust and confidence in the use of e-commerce, are included in a couple or single RTAs.

Figure 11: Types of objectives of the RTA's chapter on e-commerce

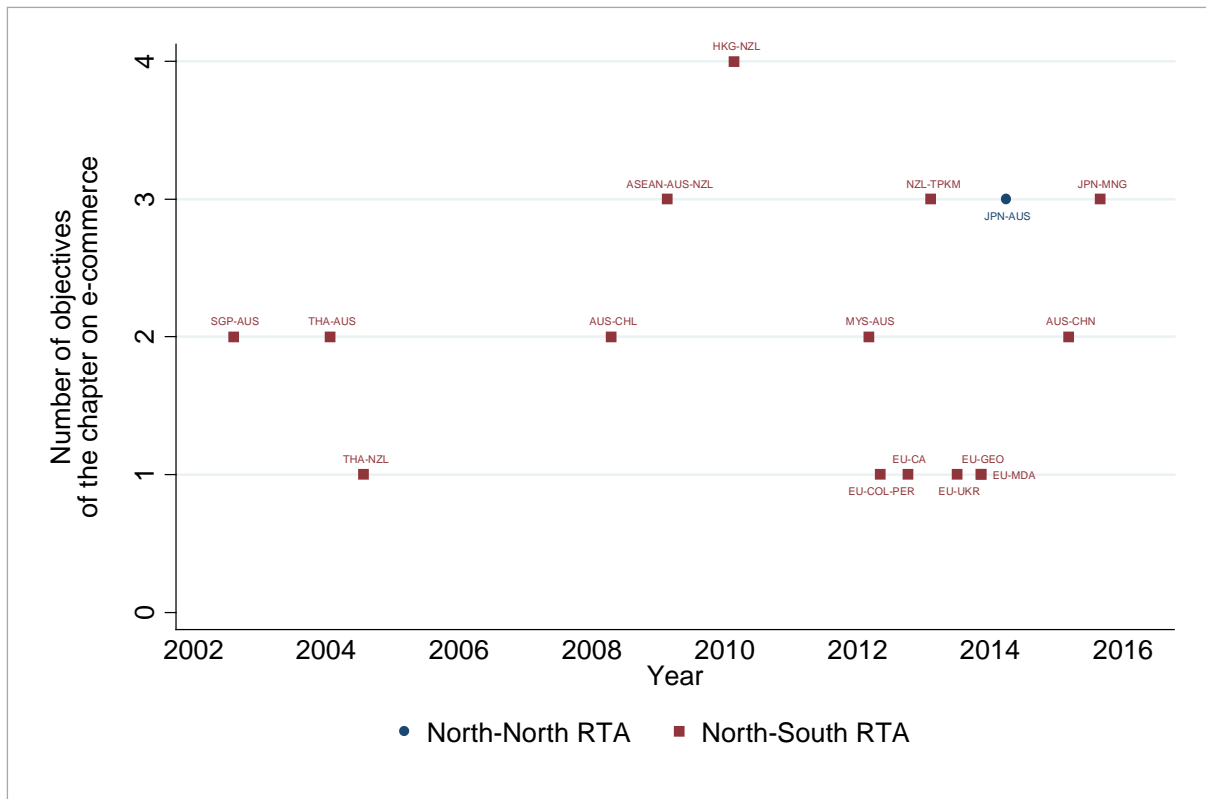


Source: Computations based on WTO RTA database.

Part of the heterogeneity in the types of objectives cited stems from the fact that the number of provisions referring to the objectives of the e-commerce chapter varies across agreements. As shown in Figure 12, the RTA between Hong Kong (China) and New Zealand includes the highest number of explicit objectives of the e-commerce chapter. In particular, the objectives of that agreement are to (1) avoid restrictions to trade between the parties being introduced as a result of the use of e-commerce transactions; (2) minimise the extent to which e-commerce transactions are subject to particular requirements, tariffs or other limitations or costs, which are additional to other transactions; (3) encourage, where possible, the treatment of e-commerce transactions by the parties as equivalent to corresponding paper transactions; and (4) promote the use of e-commerce to assist the timeliness and reduce the cost of commercial transactions.

¹³ Several agreements, such as the RTA between Australia and the Republic of Korea, include an article entitled "objectives" in the e-commerce chapter without explicitly stating what those objectives are. Instead, the article recognizes, among other things, the economic growth and opportunity provided by e-commerce.

Figure 12: Evolution of the number of objectives of the RTA's chapter on e-commerce



Source: Computations based on WTO RTA database.

Scope of the e-commerce chapter

Only five RTAs include a specific provision that explicitly mentions the scope of the e-commerce chapter. The RTA between Costa Rica and Colombia states that the e-commerce chapter applies to measures affecting e-commerce. Similarly, the RTA between Japan and Switzerland stipulates that the e-commerce chapter applies to measures by a party affecting e-commerce, including for goods and services, in the context of their bilateral trade. Similarly, the Additional Protocol to the Pacific Alliance Framework Agreement specifies that the e-commerce chapter applies to measures affecting electronic transactions of goods and services, including digital products, without prejudice to the applicable provisions on services and investments. A similar provision is found in the RTA between Mexico and Panama but instead of referring to measures affecting e-commerce, the provision mentions measures to promote e-commerce.

More recently, the RTA between Eurasian Economic Union (EAEU) and Viet Nam incorporate a provision stipulating that the chapter, entitled electronic technologies in trade, shall apply to e-commerce (defined as trade with the use of electronic technologies) and to the use of electronic documents in trade between the parties by means of digital signatures and a trusted third party. Another related provision further specifies that the scope of the chapter includes measures taken by central, regional or local governments and authorities, as well as non-governmental bodies in the exercise of powers delegated by central, regional or local governments or authorities. In that context, the RTA adds that in fulfilling its obligations and commitments under the e-commerce chapter the parties shall take such reasonable measures as may be available to them to ensure the observance of such obligations and commitments by regional and local governments and authorities and non-governmental bodies within their respective territory.

Besides such type of provisions, there are other types of provisions that implicitly define the scope of the e-commerce chapter. One approach is the inclusion of an article entitled "definitions" providing the definition of specific terms related to e-commerce.¹⁴ An alternative approach lists the type of trade that is not covered by the e-commerce chapter. Another type of provisions is related to the categorisation and obligation of electronic transmission. These different approaches are reviewed next.

Definitions of e-commerce

Under the WTO work program on e-commerce, e-commerce is understood to mean "the production, distribution, marketing, sale or delivery of goods and services by electronic means". As highlighted in Figure 13, out of the 56 notified RTAs with an article on definitions in their e-commerce chapter only four agreements provide for an explicit definition of e-commerce. None of them refer verbatim to the definition used in the WTO's e-commerce work programme. In the RTA between Canada and Panama, e-commerce means commerce conducted through telecommunications, alone or in conjunction with other ICT. Similarly, according to the RTA between Mexico and Panama, e-commerce means any agreement, transaction or exchange of information with commercial purposes in which the parties interact using the Internet or other information and telecommunication technologies.¹⁵ The RTA between the United States and Morocco includes a definition of e-commerce, which is relatively similar to the one used in the WTO's work programme on e-commerce, namely the production, distribution, marketing, sales, or delivery of products or services through electronic means. Many RTAs provide for a definition for the term "electronic means" or the expression "using electronic means", namely employing computer processing.¹⁶ The RTA between the Republic of Korea and Singapore mentions not only employing computer processing but also employing digital processing. According to the RTA between EAEU and Viet Nam, e-commerce refers to trade with the use of electronic technologies, which is defined as a combination of software and hardware that provides interaction between the persons of the parties using an electronic document.

Instead of referring to e-commerce, several RTAs, including the RTA between Canada and Colombia, define the term "trade conducted by electronic means" as trade conducted through telecommunications, alone or in conjunction with other ICT. A relatively similar definition is specified for the term "delivered or performed electronically".¹⁷ The RTAs to which Canada is a party with Peru and the Republic of Korea further provide a specific definition of telecommunications, namely the transmission and reception of signals by any electromagnetic means.

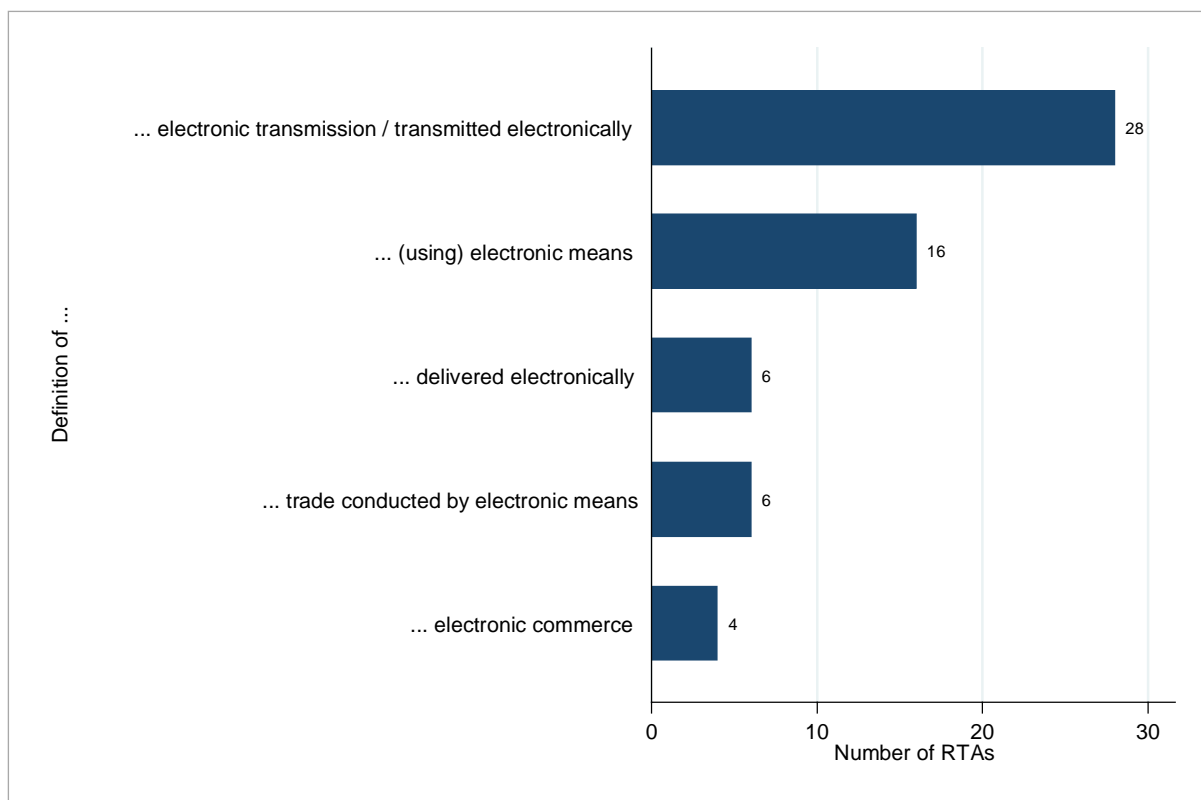
¹⁴ Other definitions are discussed in their relevant sub-section. See Annex 3 for the complete list of all the terms with a specific definition found in e-commerce chapter.

¹⁵ It is important to note that despite the fact that some RTAs do not include an article with specific definition, they still provide an implicit definition of e-commerce. For instance, the article on e-commerce of the Economic Agreement between the Gulf Cooperation Council (GCC) States refers to trade exchange through electronic means of communication.

¹⁶ The term "electronic means" is only mentioned in the article on electronic supply of services in several RTAs providing an explicit definition of "electronic means".

¹⁷ The term "delivered electronically" is also included in the definition of digital products in several RTAs. See section 5.6 for a discussion on the provisions related to customs duties on digital products.

Figure 13: Provisions on definition of e-commerce



Source: Computations based on WTO RTA database.

Limitations of e-commerce chapter's scope

A limited number of RTAs, namely nine agreements define broad exceptions in their e-commerce chapters, which exclude certain types of measures from the disciplines therein. Like other types of e-commerce provisions, these limitations differ across agreements. The RTA between Japan and Switzerland explains that the e-commerce chapter shall not apply to government procurement, subsidies as defined in the Agreement on Subsidies and Countervailing Measures in Annex 1A to the WTO Agreement, and taxation measures. The e-commerce chapter of the Additional Protocol to the Pacific Alliance Framework Agreement also does not apply to government procurement, as well as information held by or on behalf of a party, or measures related to such information. Similarly, the RTA between India and Singapore excludes government procurement as well as measures affecting broadcasting, as defined under each party's domestic law, which may include webcasting, cablecasting and video-on-demand.

In other agreements, the provision delimitating the scope is more specific. For instance, the RTAs to which Singapore is a party with the GCC states and the Republic of Korea also exclude measures affecting the electronic transmission of a series of text, video, images, sound recordings, and other products scheduled by a content provider for aural and/or visual reception, and for which the content consumer has no choice over the scheduling of the series from the application of the e-commerce. As discussed in the sub-sections on customs duties and non-discrimination, it is important to note that in 24 RTAs, the limitation of the scope is not related to the whole e-commerce chapter, but applies only to specific provisions, such as the non-imposition of customs duties and non-discriminatory treatment. Another approach adopted by the RTAs to which the United States is a party with Panama, Colombia, the Republic of Korea and Peru specifies in their respective government procurement chapter that no provision of the e-commerce chapter shall be construed as imposing obligations on a party with respect to the procurement of digital products.¹⁸

¹⁸ Similarly, 20 RTAs with a chapter on e-commerce include a provision in the chapter on financial services specifying that several chapters, including the one on e-commerce, do not apply to non-discriminatory

Nature of electronic transmissions

Part of the debate in the WTO work programme on e-commerce is whether electronic transmissions are to be considered a good or a service.¹⁹ This issue is also reflected in twelve RTAs. In particular, the RTAs to which the EU is a party with the Caribbean Forum (CARIFORUM) states, Colombia and Peru, Georgia, Ukraine and the Republic of Moldova as well as the RTA between the GCC states and Singapore specify that the parties agree that deliveries by electronic means or electronic transmissions are or shall be considered as the provision of services, within the meaning of the chapter on cross-border supply of services.

Conversely, the RTAs to which the EU is a party with Chile and the Republic of Korea as well as the RTAs between China and the Republic of Korea and between Japan and Australia specify that the inclusion of e-commerce provisions is made without prejudice to the parties' view on the question of whether e-commerce, trade in digital products through electronic transmission or deliveries by electronic means should be considered as trade in services or goods.²⁰ A similar provision is found in the article defining digital products of the RTA between the United States and Chile and explains that the definition under the agreement is regardless of whether a party treats digital products as a good or a service under its domestic law. Similarly, the RTAs between Chile and Colombia, and between Mexico and Panama as well as the Additional Protocol to the Pacific Alliance Framework Agreement specify that the definition of digital products is without prejudice to ongoing discussions in the WTO as to whether the trade in electronically transmitted digital products constitutes a commodity or a service.²¹

No obligation to deliver products electronically

The RTAs to which Canada is a party with Colombia, the Republic of Korea, Panama and Peru and the RTA between Australia and Chile are the only notified agreements to incorporate a provision clarifying that the e-commerce chapter does not impose an obligation on a party to allow products to be delivered electronically. The RTA between Canada and the Republic of Korea further confirms that the e-commerce chapter does not impose obligations on a party to allow digital products to be delivered electronically, except in accordance with that party's commitments in other chapters. Similarly, the RTA between Australia and Chile stipulates that nothing in the e-commerce chapter imposes obligations to allow the electronic supply of a service nor the electronic transmission of content associated with those services, except in accordance with the provisions of the chapters on cross-border trade in services, investment, financial services, including the annexes on non-conforming measures.

Relation to the other chapters of the RTA

A large number of RTAs with a dedicated chapter on e-commerce, namely 46 agreements, include at least one provision referring to other chapters or provisions in their respective agreements. As highlighted in Figure 14, these provisions range from the application of other chapters' relevant provisions, including general exceptions and non-conforming measures, to the exclusion from the dispute settlement chapter.

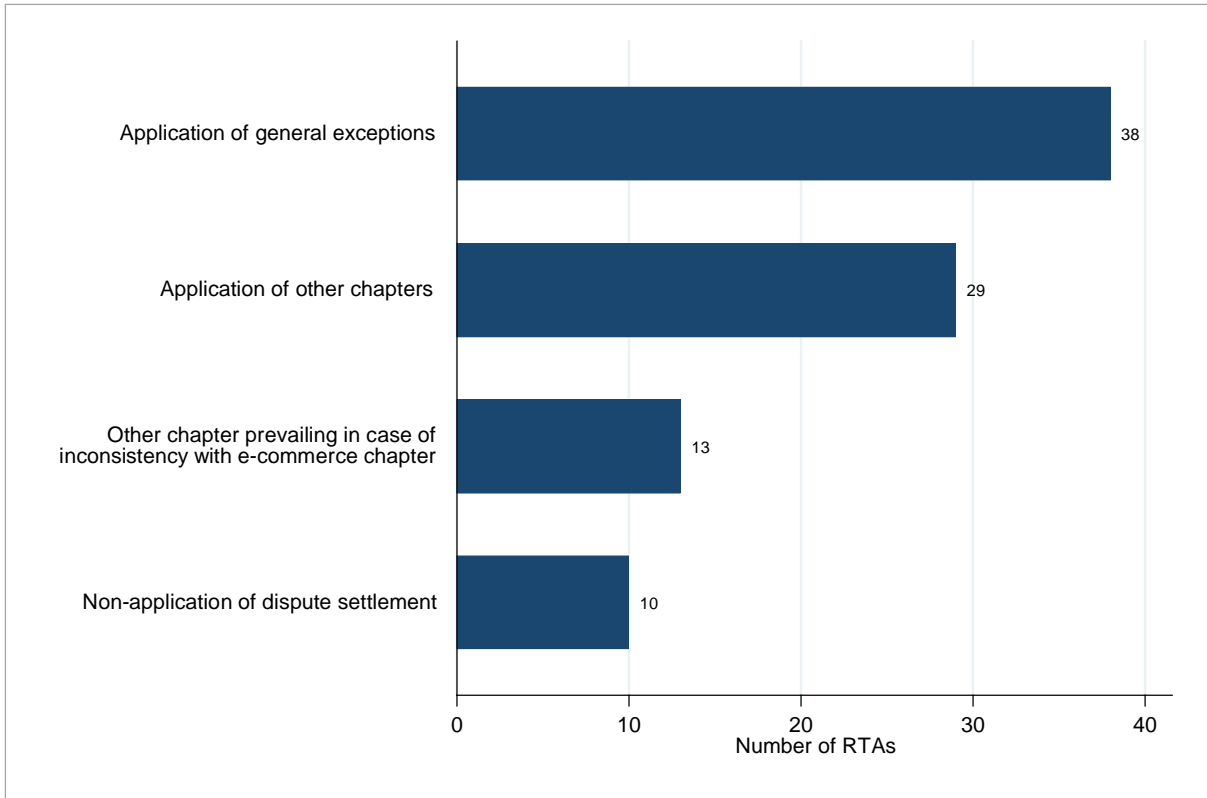
measures of general application taken by a public entity in pursuit of monetary and related credit policies or exchange rate policies.

¹⁹ In the first dedicated discussion on e-commerce, the General Council recognised that both goods and services could be sold electronically and "whether a particular transaction involves trade in goods or services must depend on the product being sold" (WT/GC/W/436, 6 July 2001). It also recognised that it was unclear whether products which could be transmitted both electronically and via carrier medium were to be considered as falling within the scope of the GATT or GATS.

²⁰ In the case of the RTAs negotiated by the EU with Chile and the Republic of Korea, the caveat provision only refers to the position of Chile and the Republic of Korea, respectively.

²¹ See section 5.6 for a discussion on the provisions related to customs duties on digital products.

Figure 14: Types of provisions on the relation to the RTA's other chapters

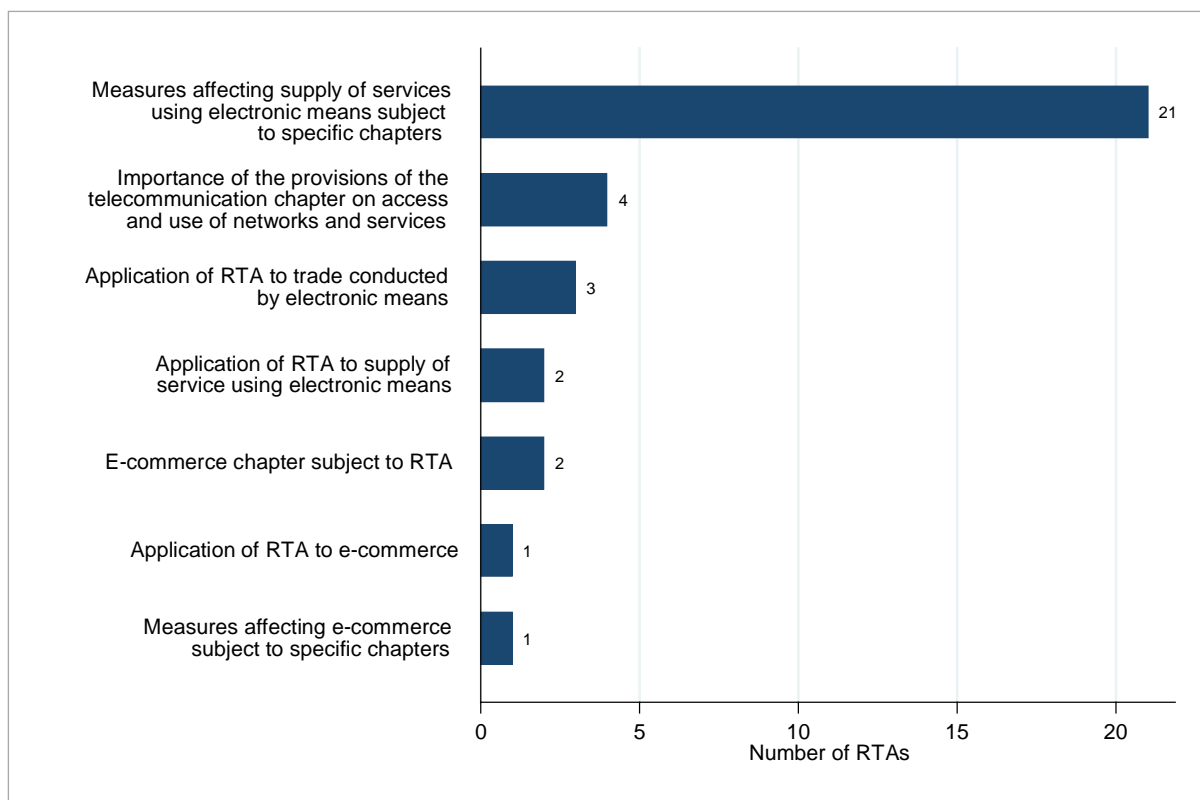


Source: Computations based on WTO RTA database.

Application of other chapters

When defining the scope of the e-commerce chapter, several RTAs take the opportunity to incorporate a provision that specifies the applicability of the RTA's other chapters. Similar to other types of provisions discussed below, the language of the provisions referring to other chapters are heterogeneous across agreements. Part of this heterogeneity stems from the definition of the scope, which, as shown in Figure 15, ranges from e-commerce and the supply of services using electronic means and trade conducted by electronic means to measures affecting the supply of services using electronic means and measures affecting e-commerce. This heterogeneity also arises from the fact that some provisions refer to the application of the RTA in general, while other provisions limit the application to specific chapters, as highlighted in Figure 16.

Figure 15: Types of provisions related to the application of the RTA's other chapters



Source: Computations based on WTO RTA database.

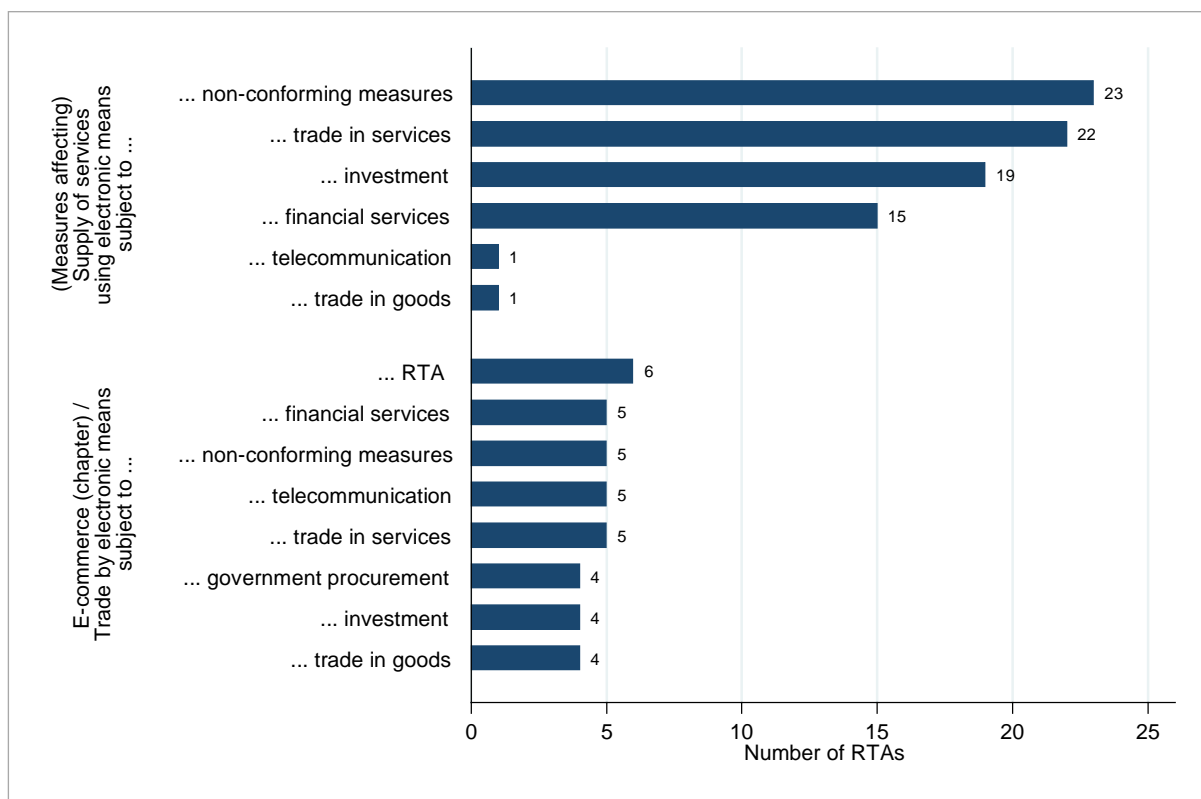
The most common form of this type of provisions, found in various RTAs, specifies that the parties affirm that measures affecting the supply of a service using electronic means fall within the scope of the obligations contained in the relevant provisions of the chapter on trade in services subject to any exceptions or non-conforming measures set out in the RTA, which are applicable to such obligations. Many of these RTAs, including several agreements negotiated by the United States, refer also to the obligations contained in the relevant provisions of the chapter on financial services and investment. The RTA between Australia and Malaysia includes a similar provision but extends also the scope to the obligation contained in the relevant provisions of the chapter on telecommunications services.

Instead of referring to measures affecting the supply of a service using electronic means, the provision found in the RTA between India and Singapore affirms that the supply of a service using electronic means falls within the scope of the obligations contained in the relevant provisions of the chapters on trade in goods, investment and trade in services, subject to any reservations or exceptions applicable to such obligations. As such, the RTA between India and Singapore is the only notified RTA to mention explicitly that the supply of a service using electronic is also subject to the relevant provisions of the chapter on trade in goods.

The remaining provisions related to the application of other chapters refer more broadly to e-commerce or trade conducted by electronic means. For instance, the RTA between the United States and Chile states that the e-commerce chapter is subject to any other relevant provisions, exceptions, or non-conforming measures set forth in the agreement's other chapters or annexes. Similarly, the RTA between Costa Rica and Colombia explains that the e-commerce chapter applies to measures affecting e-commerce, subject to the relevant provisions of the chapters on trade in services, investment, financial services and telecommunications, as well as any of the exceptions or non-conforming measures that are applicable to such obligations. Worded differently, the RTAs negotiated by Canada with Colombia and the Republic of Korea confirm that trade conducted by electronic means is subject to the RTA's provisions, including those in the chapters on trade in services, national treatment and market access of goods, government procurement, financial services, telecommunications, and exceptions. The RTA between Canada

and Panama includes a similar provision, but the term "trade conducted by electronic means" is replaced by "e-commerce". The RTAs to which Canada is a party with Colombia, Panama, Peru, and the Republic of Korea further recognize the importance of the telecommunications chapter's article on access to and use of public telecommunications transport networks or services in enabling trade conducted by electronic means.

Figure 16: Identification of specific other chapters



Source: Computations based on WTO RTA database.

As explained above, several RTAs specify that the chapter on e-commerce is subject to any applicable non-conforming measures on investment and/or services. It turns out that there are only a few notified RTAs that mention explicitly e-commerce in their schedules of commitments. The RTAs to which the Republic of Korea is a party with Canada, Colombia, the EU and Peru include in the Republic of Korea's schedule a non-conforming measure on market access and local presence specifying that the sale of tobacco to retail buyers by mail or in e-commerce is prohibited. Similarly, the sale of liquor by telephone or in e-commerce is prohibited. Another non-conforming measure found in Thailand's schedule on investment associated with the RTAs negotiated with Australia and New Zealand explains that registration with the Department of Business Development is required for a natural person, non-registered ordinary partnership, group of persons or juridical person engaging in selling and purchasing goods and services by electronic media via the Internet, namely e-commerce, Internet Service Provider, webhosting and e-market place.

Other non-confirming measures mentioning explicitly e-commerce or electronic environment are found in advertising services, electronic games business, electronic gambling, electronic newspaper and contractual service suppliers making it difficult to identify clear patterns.²² For instance, Chile in its agreements with Australia, Japan and the United States reserves the right to adopt or maintain any measure that accords differential treatment to countries under any existing

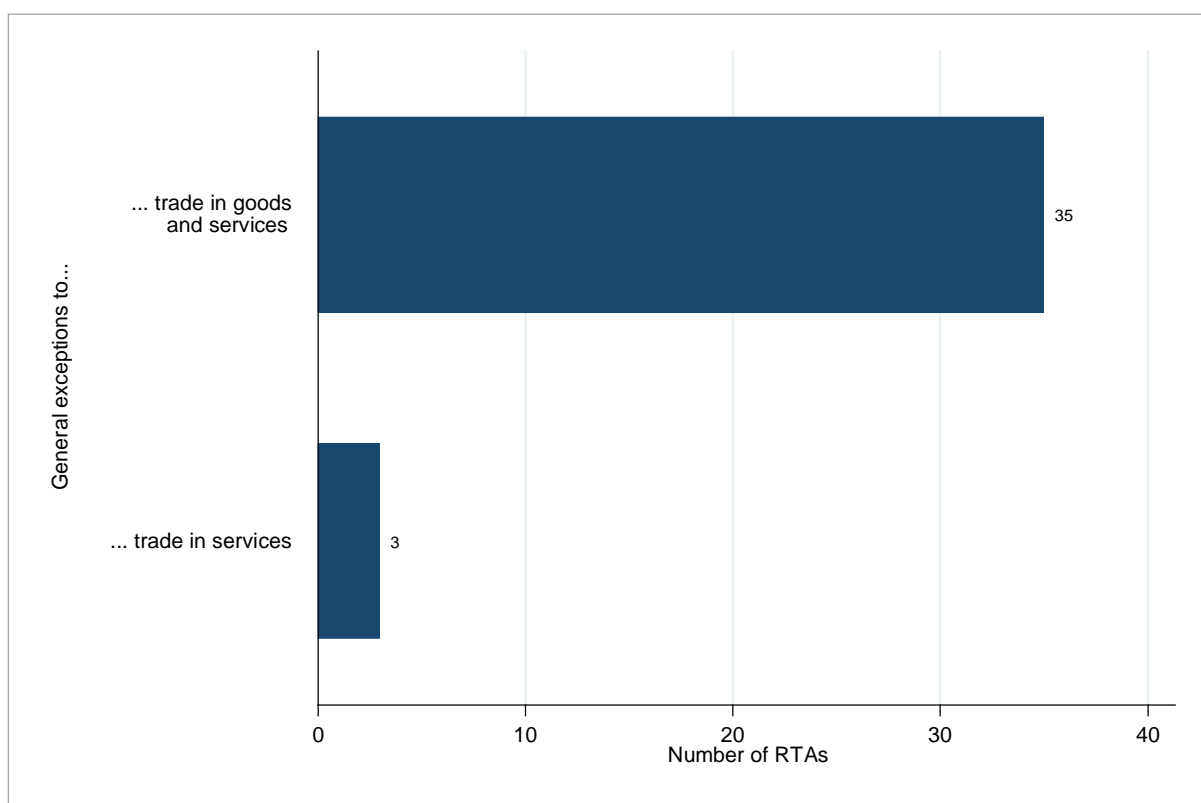
²² The commitments and non-conforming measures in financial services are not covered in this study.

or future agreement with respect to cultural industries, including the public, distribution or sale of electronic newspapers. The Republic of Korea includes also in its schedule associated with the RTA with Viet Nam a limitation on market access requiring juridical person in consultancy services related to technical knowledge or skill concerning natural science applied to information technology, e-business and digital electronics to obtain a service contract for a period not exceeding one year from a juridical person in the Republic of Korea, which is the final consumer of the service being supplied.

Application of general exceptions

Besides the reference to non-conforming measures on services and investment, a relative large number of RTAs, namely 38 agreements, includes a provision specifying that the provisions on general exceptions apply to the e-commerce chapter as well.²³ In most cases, this type of provisions is found in the RTA's chapter on consultations and dispute settlement. Although the language of this type of provisions differs between many RTAs, one of the most common forms specifies that for purposes of the e-commerce chapter, among other chapters, Article XX of the GATT 1994 and its interpretive notes are incorporated into and made part of the RTA, *mutatis mutandis*. A similar provision stipulates that for purposes of the e-commerce chapter, Article XIV of the GATS (including its footnotes) is incorporated into and made part of the RTA, *mutatis mutandis*.

Figure 17: Scope of general exceptions provisions to e-commerce



Source: Computations based on WTO RTA database.

²³ 18 RTAs also include an article entitled exceptions in the chapter on financial services which explains that notwithstanding any provisions of the e-commerce chapter, a party shall not be prevented from adopting or maintaining measures for prudential reasons, including for the protection of investors, depositors, policy holders, or persons to whom a fiduciary duty is owed by a financial institution or cross-border financial service supplier, or to ensure the integrity and stability of the financial system.

As shown in Figure 17, most RTAs with such type of provisions extend the scope of general exceptions to e-commerce to both trade in goods and services. Only a couple of RTAs refer only to general exceptions related to trade in services in the context of e-commerce. This is the case of the RTAs between the United States and Colombia and between Mexico and Central America, which for purposes of the e-commerce chapter incorporates only Article XIV of the GATS (including its footnotes). The RTA between Mexico and Central America further explains in a footnote that this provision is without prejudice to digital products being classified as goods or services.²⁴ Similarly, but worded differently, the RTA between Australia and Singapore includes an article entitled "exceptions" in the e-commerce chapter stipulating that the e-commerce chapter shall be subject to the general and security exceptions listed in the articles on general exceptions and security exceptions of the chapter on trade in services. The RTA between Australia and the Republic of Korea includes also a footnote in its article on general exceptions specifying that this article is without prejudice to whether electronic transmissions should be characterised as goods or services.

Relationship to other chapters in case of inconsistency with them

A limited but increasing number of RTAs incorporate a provision clarifying what happens in case of inconsistency between the e-commerce chapter and other chapters in the RTAs. The most common form, included in several agreements such as the RTAs to which Canada is a party with Colombia, Honduras, Peru and the Republic of Korea, explains that in the event of any inconsistency between the e-commerce chapter and other chapters, the other chapters shall prevail to the extent of the inconsistency. The RTA between Canada and Panama includes a similar provision except that it does not mention the expression "to the extent of the inconsistency". Instead of referring to "other chapters", the RTAs to which Japan is a party with Switzerland and Mongolia explicitly identify, which are these other chapters that shall prevail in the event of an inconsistency with the chapter on e-commerce, namely the chapters on trade in goods, trade in services, investment or intellectual property.

In several other RTAs, the provision clarifying the relation in case of inconsistency is limited to specific provisions. For instance, the RTAs negotiated by Australia with the United States and Japan explain that the provisions on non-discrimination treatment of digital products does not apply to the extent that they are inconsistent with the chapter on intellectual property rights.

Application of dispute settlement

Another type of provisions on the relation with respect to the RTA's other chapters consists in specifying whether the e-commerce provisions are covered or not by the dispute settlement mechanism established under the RTA. As highlighted in Figure 18, the majority of RTAs with e-commerce provisions extend these provisions to the dispute settlement. Only ten agreements explicitly exclude some or all provisions related to e-commerce from the dispute settlement procedures. In particular, the RTAs to which New Zealand is a party with Chinese Taipei and Hong Kong (China) and between China and the Republic of Korea specify that none of the parties shall have recourse to any dispute settlement procedures under their respective RTA in respect of any issue arising from or relating to the chapter on e-commerce. Similarly, the RTAs negotiated by Australia with China, Malaysia, and the ASEAN states and New Zealand, explain that the chapter on consultations and dispute settlement shall not apply to any matter arising under the e-commerce chapter.

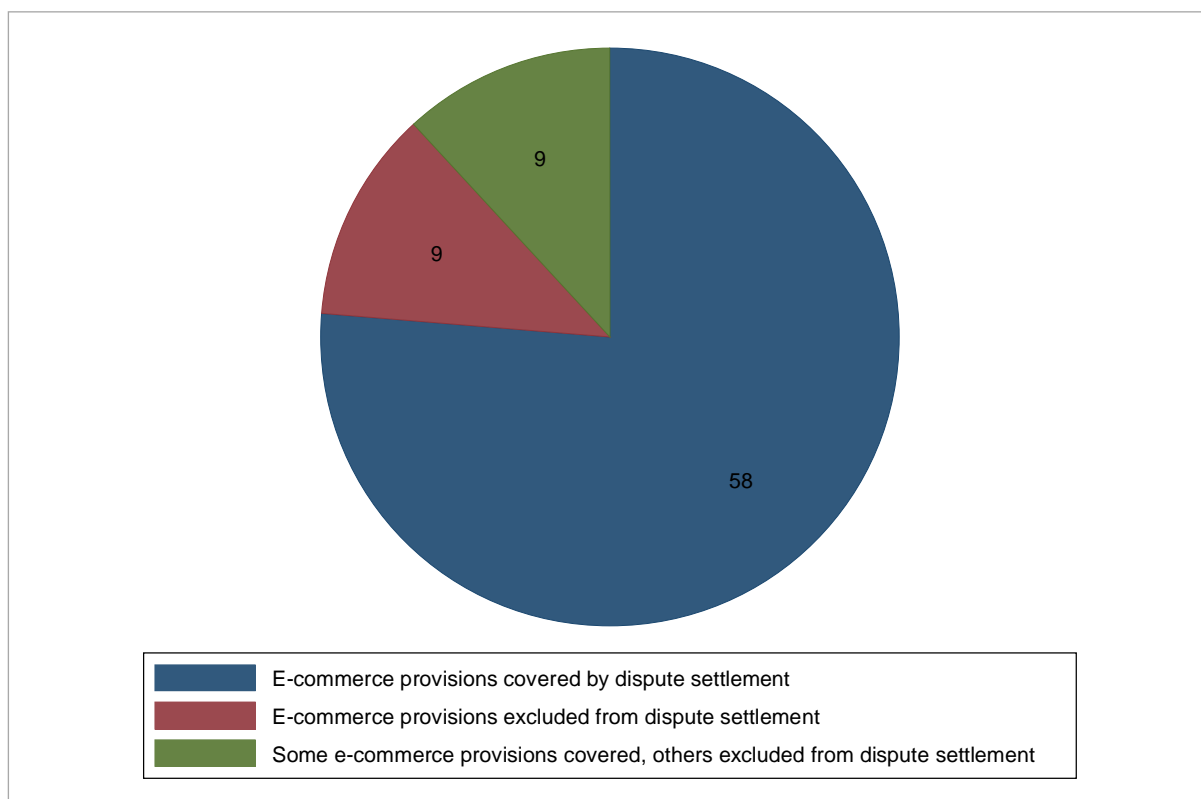
Conversely a few other RTAs only exclude some e-commerce provisions from the dispute settlement procedures.²⁵ This is the case of both RTAs negotiated by Thailand with Australia and New Zealand, which stipulate that the chapter on consultation and dispute settlement shall not apply to the provisions of the chapter on e-commerce, except for the article on customs duties on electronic transmissions. A different approach taken by the RTA between Australia and Singapore

²⁴ As explained above, several RTAs include a definition of "digital products", which is sometimes complemented by the same clarification.

²⁵ Another case is found in the RTA between the EU and Ukraine, in which the chapter on establishment, trade in services and e-commerce is covered by the dispute settlement chapter but excluded from the chapter on mediation mechanism. However, the provision specifies that the RTA's trade committee may, after due consideration, decide that this mechanism should apply.

is to explicitly list the e-commerce chapter's articles that are excluded from the dispute settlement chapter. In particular, the articles on domestic regulatory framework, electronic authentication and signature, online consumer protection and online personal data protection are not covered by the dispute settlement provisions of that RTA.²⁶ Another specific case concerns the RTA between the Gulf Cooperation Council States (GCC) and Singapore, whose dispute settlement chapter applies to the entire e-commerce chapter but not the article on e-commerce found in the cooperation chapter.

Figure 18: Dispute settlement coverage of e-commerce provisions in RTAs



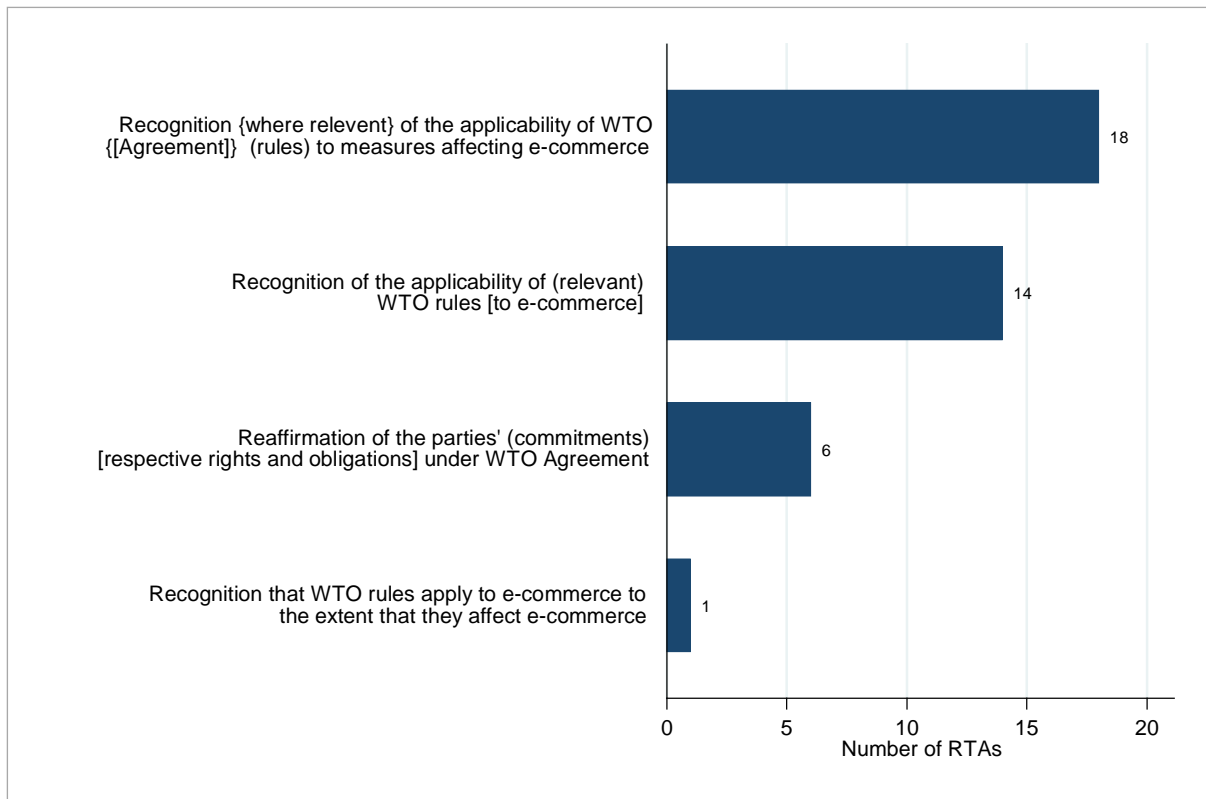
Source: Computations based on WTO RTA database.

Applicability of WTO Rules

An increasing number of RTAs, namely 38 agreements, include a provision referring to the applicability of WTO rules to e-commerce. Such provision is typically found in an article entitled "general provisions" or "objective, scope and coverage". As highlighted in Figure 19, the language of this type of provisions differs across agreements. The most common provision specifies that the parties recognize (where relevant) the applicability of WTO rules to measures affecting e-commerce. Instead of referring to measures affecting e-commerce, a related provision states that the parties recognize the applicability of (relevant) WTO rules to e-commerce. Another related provision, but worded differently and found only in the RTA between Canada and Honduras, stipulates that the parties recognize that WTO rules apply to e-commerce to the extent they affect e-commerce.

²⁶ The articles of the chapter on e-commerce not mentioned are those on preamble, purposes and definition, transparency, customs duties and paperless trading.

Figure 19: Types of provisions related to WTO applicability



Source: Computations based on WTO RTA database.

Unlike other RTAs with e-commerce provisions, the RTAs to which the EU is a party with Central America, Colombia and Peru, Georgia, the Republic of Korea, the Republic of Moldova and Ukraine have the distinction of including their e-commerce provisions in the chapter on establishment, trade in services and electronic commerce. Under this chapter, the parties reaffirm their commitments or respective rights and obligations under the WTO Agreement. In the case of the RTA between the EU and the Republic of Korea, the provision not only states that the parties reaffirm their respective rights and obligations under the WTO Agreement, but that they also recognize the applicability of the WTO Agreement to measures affecting e-commerce.

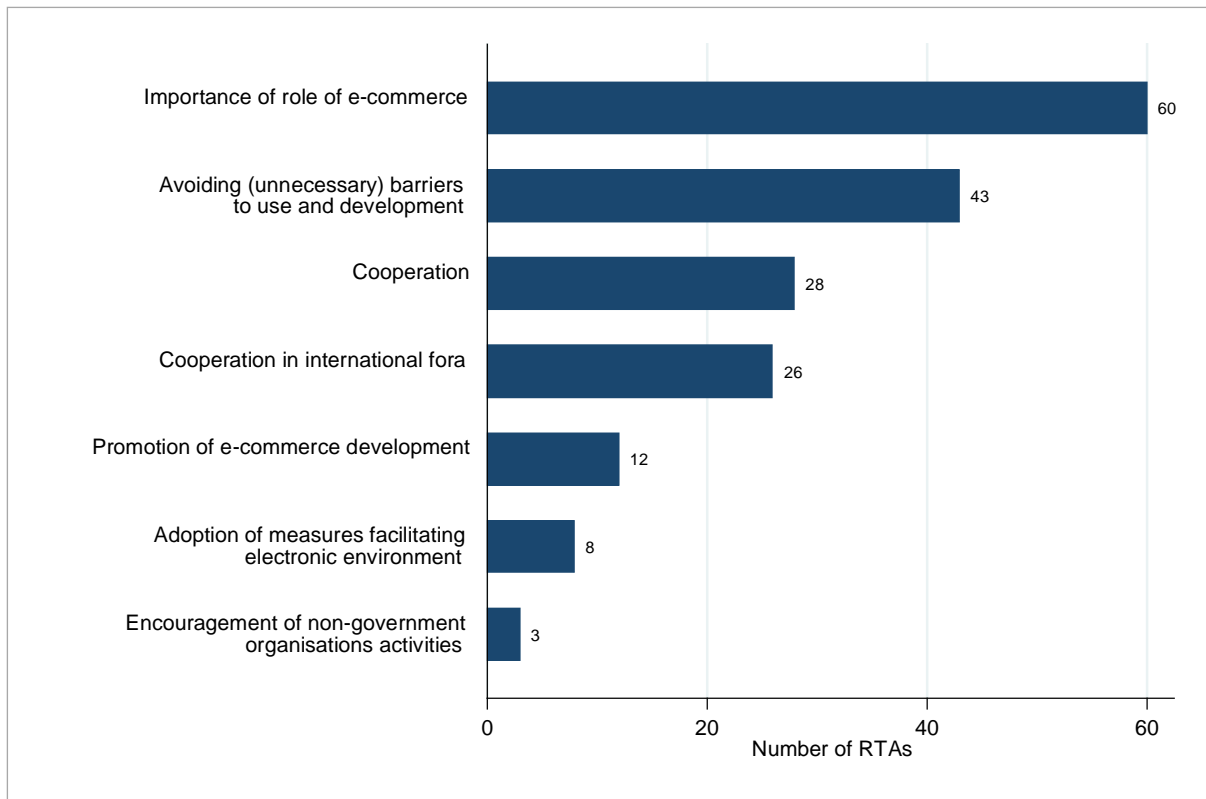
Promotion of e-commerce

As explained above, several RTAs incorporate a provision stating the objective of the chapter on e-commerce, which in many cases, consists in promoting e-commerce between the parties. Several other provisions related and referring to the promotion and development of e-commerce have been included in a great number of RTAs, namely 66 agreements. Similar to other types of e-commerce provisions, provisions related to the promotion of e-commerce differ between agreements in terms of language and scope, as shown in Figure 20.²⁷

The most common type of provision, usually located in an article entitled "general provisions", specifies that the parties recognize the economic growth and opportunity provided by e-commerce. In other related provisions, found in a limited number of RTAs, the parties either recognize the growing role of e-commerce for trade between the parties or that e-commerce increases trade opportunities in many sectors. The provision recognizing the important role of e-commerce is often complemented by another provision, in which the parties recognize the importance of avoiding barriers to the use and development of e-commerce. In a limited number of RTAs, the provision refers explicitly to the importance of avoiding unnecessary barriers.

²⁷ As discussed below in greater detail, most of the other types of e-commerce provisions implicitly aim at promoting e-commerce.

Figure 20: Types of provisions related to the promotion of e-commerce

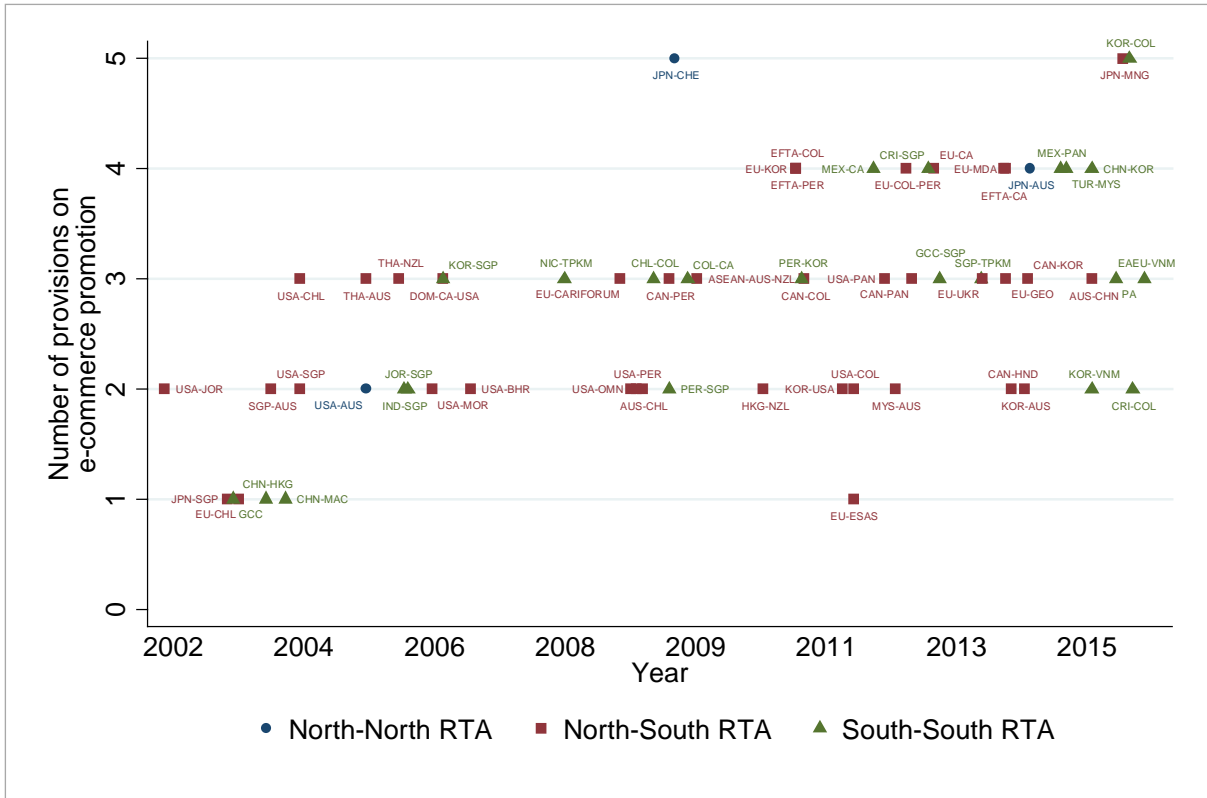


Source: Computations based on WTO RTA database.

Cooperation provisions are another common type of provisions related to the promotion of e-commerce. In particular, several RTAs include a provision specifying that the parties affirm or recognize the importance of actively participating in regional and multilateral fora to promote the development of e-commerce. Other provisions related to cooperation in international fora are worded in slightly firmer language and found in a couple of RTAs. For instance, the RTA between China and the Republic of Korea stipulates that the parties shall actively participate in regional and multilateral fora to promote the development of e-commerce in a cooperative manner. Other cooperation provisions identify explicitly the development and promotion of e-commerce as objective. Several RTAs specify that the parties shall encourage cooperative activities to promote e-commerce. Some RTAs stipulate that the parties shall maintain a dialogue on regulatory issues raised by e-commerce, addressing, *inter alia*, any other issue relevant for the development of e-commerce. Similarly, and as part of the objective of the e-commerce chapter of a few RTAs, the parties agree to promote the development of e-commerce between the parties by cooperating on the issues raised by e-commerce. Other cooperation provisions are more detailed, such as the RTA between Hong Kong (China) and New Zealand, in which the parties agree to cooperate in promoting the minimisation of transaction costs for business using of e-commerce.

The remaining types of provisions related to the promotion of e-commerce are specific to a couple of RTAs. In particular, a few agreements, including the RTAs to which Canada is a party with Colombia, the Republic of Korea, Panama and Peru, specify that the parties shall endeavour to adopt measures to facilitate trade conducted by electronic means by addressing issues relevant to the electronic environment. A more specific provision, found in the Economic Agreement between the GCC States, stipulates that the member states shall take all necessary actions to facilitate banking and trade exchange through electronic means of communication. Instead of referring to governmental action, another type of provision included in the RTAs negotiated by Japan with Australia, Mongolia and Switzerland, calls upon the parties to encourage, as appropriate and through existing means available, the activities of each party's non-profit organisations aimed at promoting e-commerce. As shown in Figure 21, both RTAs to which Japan is a party with Switzerland and Mongolia along with the agreement between Colombia and the Republic of Korea incorporate the highest number of specific provisions referring explicitly to the promotion of e-commerce.

Figure 21: Evolution of RTAs with provisions on e-commerce promotion



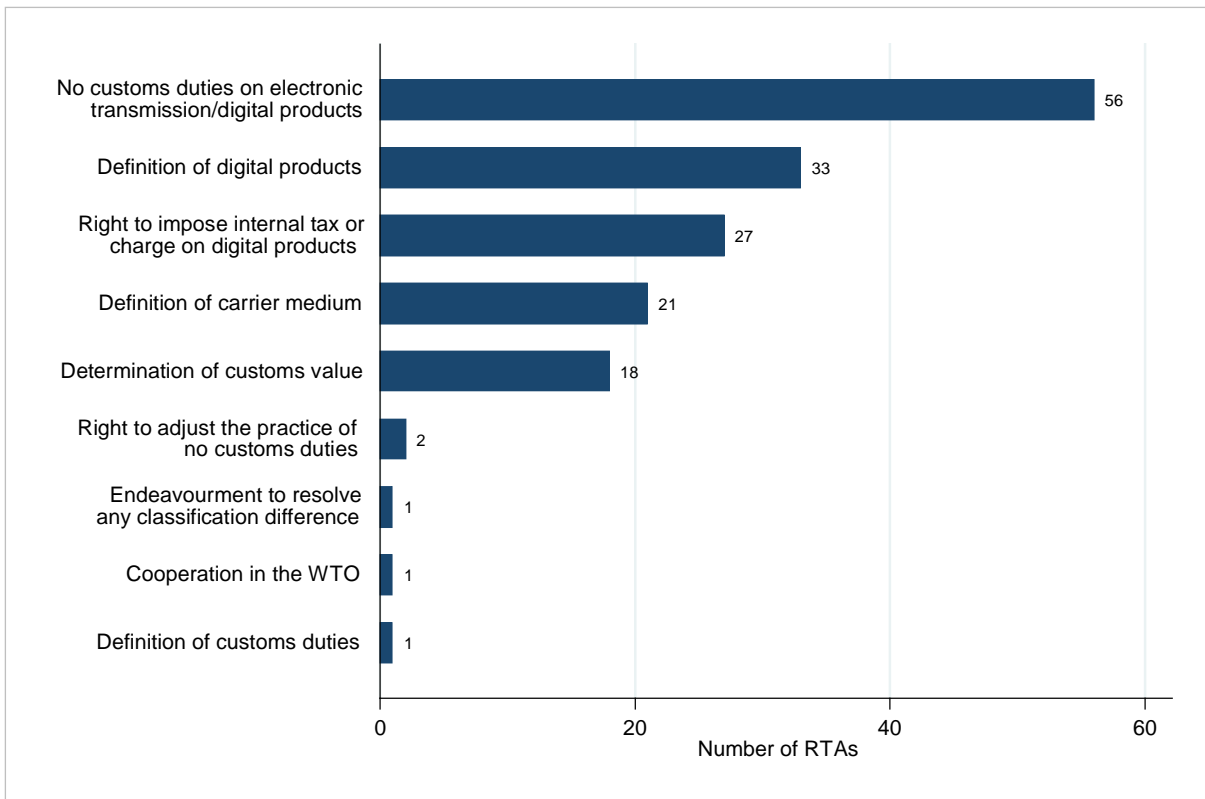
Source: Computations based on WTO RTA database.

Customs duties

It is not only in the context of the WTO that countries have made a commitment not to apply customs duties on electronic transmissions. The vast majority of the RTAs with a specific article or chapter on e-commerce, namely 56 out of the 75 RTAs, include at least one provision referring to the non-imposition of customs duties on electronic transmissions or digital products. As shown in Figure 22, different types of provisions related to customs duties have been included in those RTAs.

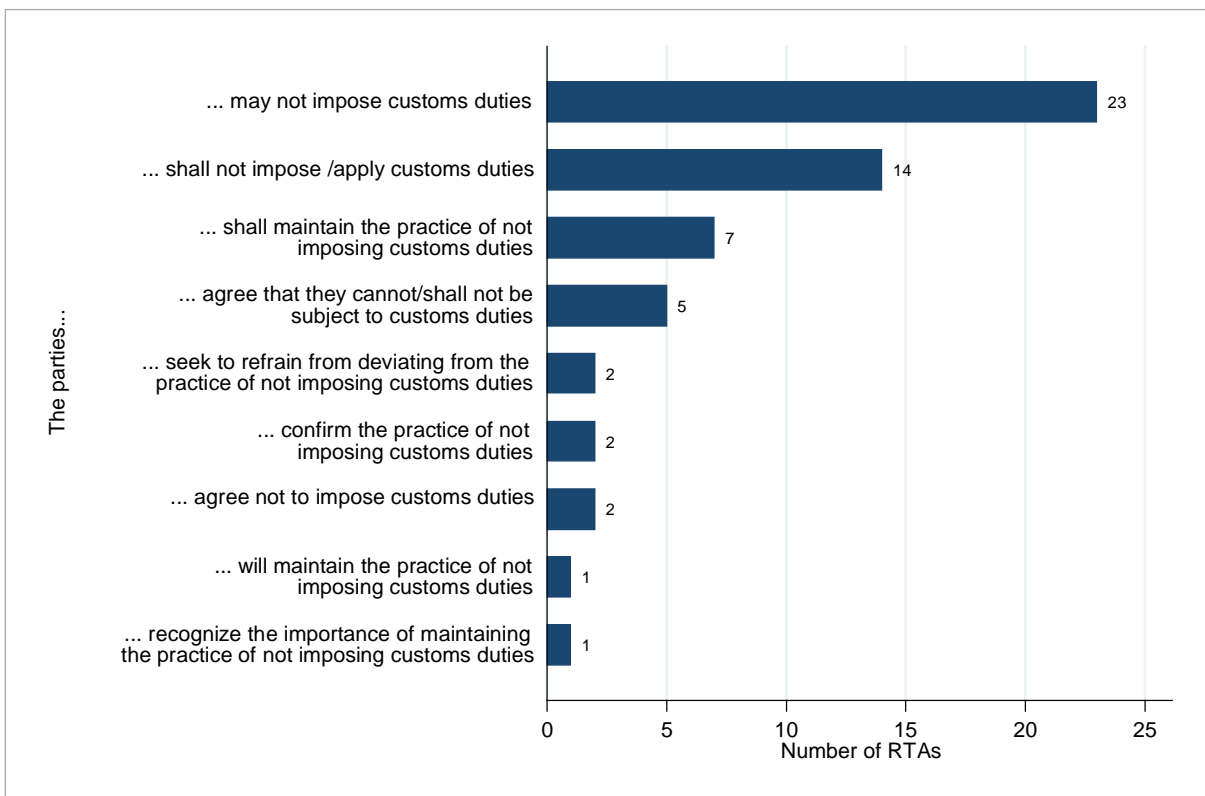
Although the language differs significantly across agreements, the most common type of provisions on customs duties, included in 56 RTAs, refers to the practice of not imposing customs duties on electronic transmissions and digital products. As highlighted in Figure 23, this type of provisions ranges from the recognition by the parties of the importance of maintaining the current practice of not imposing customs duties on electronic transmissions to firmer commitments to not impose any customs duties on electronic transmissions or digital products. In particular, the most common form stipulates that the parties may not impose customs duties, fees, or other charges on or in connection with the importation or exportation of digital products by electronic transmission. The second most common form specifies that the parties shall maintain its current practice of not imposing customs duties on electronic transmissions between the parties.

Figure 22: Types of provisions related to customs duties



Source: Computations based on WTO RTA database.

Figure 23: Provisions on the practice of no customs duties



Source: Computations based on WTO RTA database.

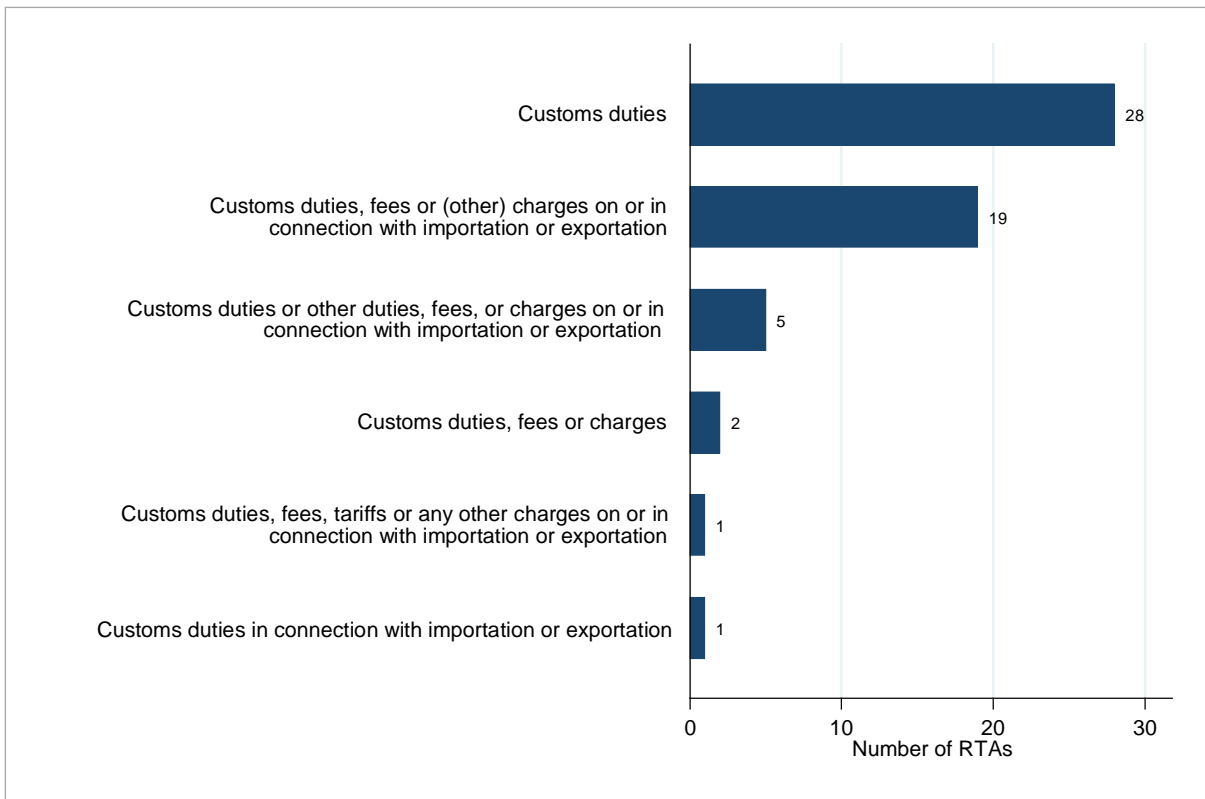
As highlighted by the two most common forms of this type of provisions, part of the heterogeneity of the language stems from the fact that, as shown in Figure 24, in some RTAs the commitment refers only to customs duties, while in other agreements it refers explicitly to customs duties as well as fees or charges. In several RTAs, these commitments are even more specific by referring to customs duties, fees or charges in connection with the importation and exportation of digital products. The RTA between Australia and Singapore is the only notified agreement to include a definition of customs duties in the chapter on e-commerce, namely any duties or charges of any kind imposed in connection with the importation of a good, and any surtaxes or surcharges imposed in connection with such importation, except charges equivalent to an internal tax, fees or other charges, and any anti-dumping or countervailing duty.

Similarly, and as highlighted in Figure 25, the language used to define the scope of the e-commerce subject to the practice of not imposing customs duties differ across RTAs. Most provisions refer to digital products by electronic transmission, while others refer more generally to electronic transmissions. Many of the RTAs with such provisions provide with a definition of "digital products", which differ in some of these agreements. The most common definition states that digital products means computer programs, text, video, images, sound recordings, and other products that are digitally encoded. In several RTAs, the definition further specifies that digital products encompasses digitally encoded products, regardless of whether they are fixed on a carrier medium or transmitted electronically. The RTA between Japan and Switzerland is the only notified RTA to explicitly list plans and designs that are digitally encoded as digital products.

Most RTAs with an explicit definition of "digital products" complement it with a definition of the term "carrier medium", which is formulated slightly differently in several RTAs. The most common definition of "carrier medium" is any physical object capable of storing a digital product by any method now known or later developed, and from which a digital product can be perceived, reproduced, or communicated, directly or indirectly and includes (but is not limited to) an optical medium, floppy disks and magnetic tapes. In a few RTAs, the definition refers to any physical object designed principally for use in storing a digital product. In other RTAs, the definition is slightly more detailed by specifying any physical object capable of storing the digital codes that form a digital product. The RTA between India and Singapore is the only notified agreement, whose definition of "carrier medium" refers to any physical object, as listed under the WTO Information Technology Agreement (ITA-1) Attachment A, capable of storing a digital product.

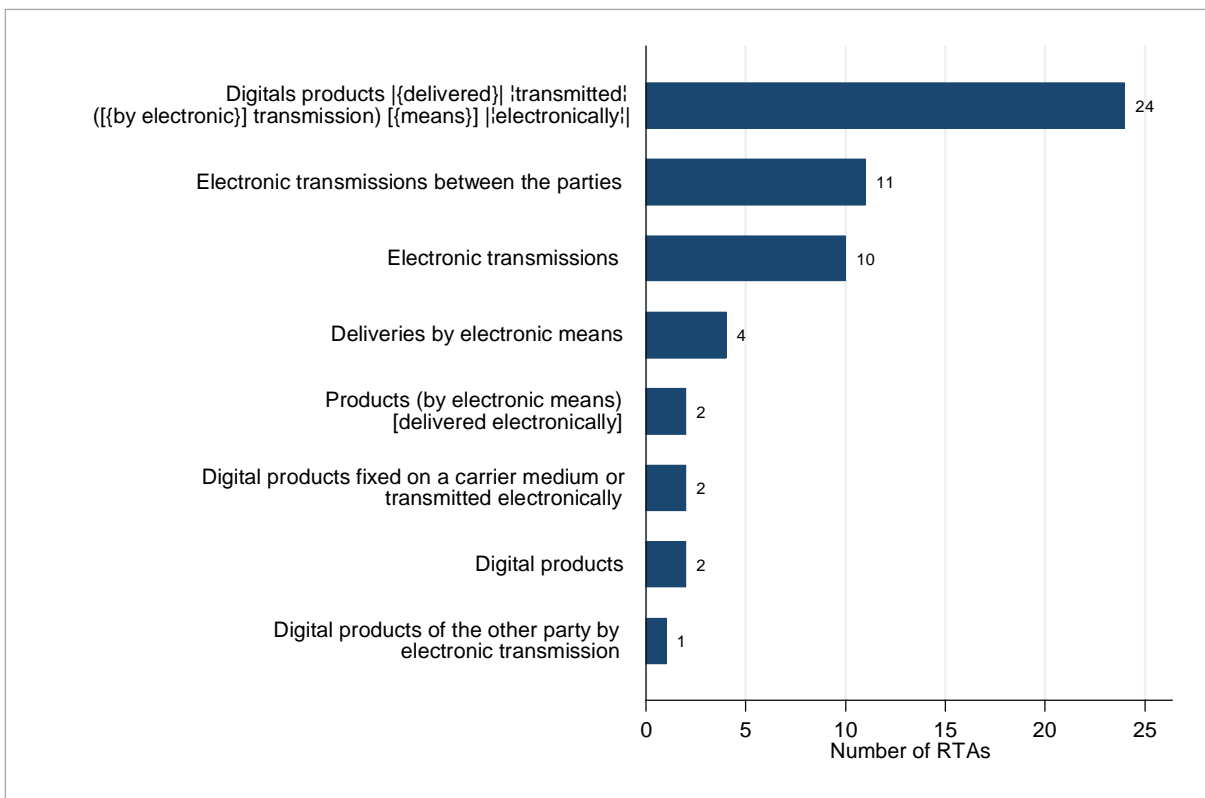
Based on the definition of "digital products" provided in some RTAs, the scope of the provision on customs duties appears to be greater in a couple of those agreements, where the practice of not imposing customs duties applies to digital products regardless of whether they are fixed on a carrier medium or transmitted electronically. The scope differs also in terms of country coverage. In a limited number of RTAs, the commitment to not impose customs duties refers specifically to electronic transmissions between the parties or to the other party's digital products by electronic transmission. A limited number of agreements, including the RTAs negotiated by the United States with the Republic of Korea and Singapore, also explain that the provisions on customs duties on digital products do not apply to measures affecting the electronic transmission of a series of text, video, images, sound recordings, and other products scheduled by a content provider for aural and/or visual reception, and for which the content consumer has no choice over the scheduling of the series.

Figure 24: Scope of provisions on the practice of no customs duties



Source: Computations based on WTO RTA database.

Figure 25: Scope of e-commerce subject to the practice of no customs duties

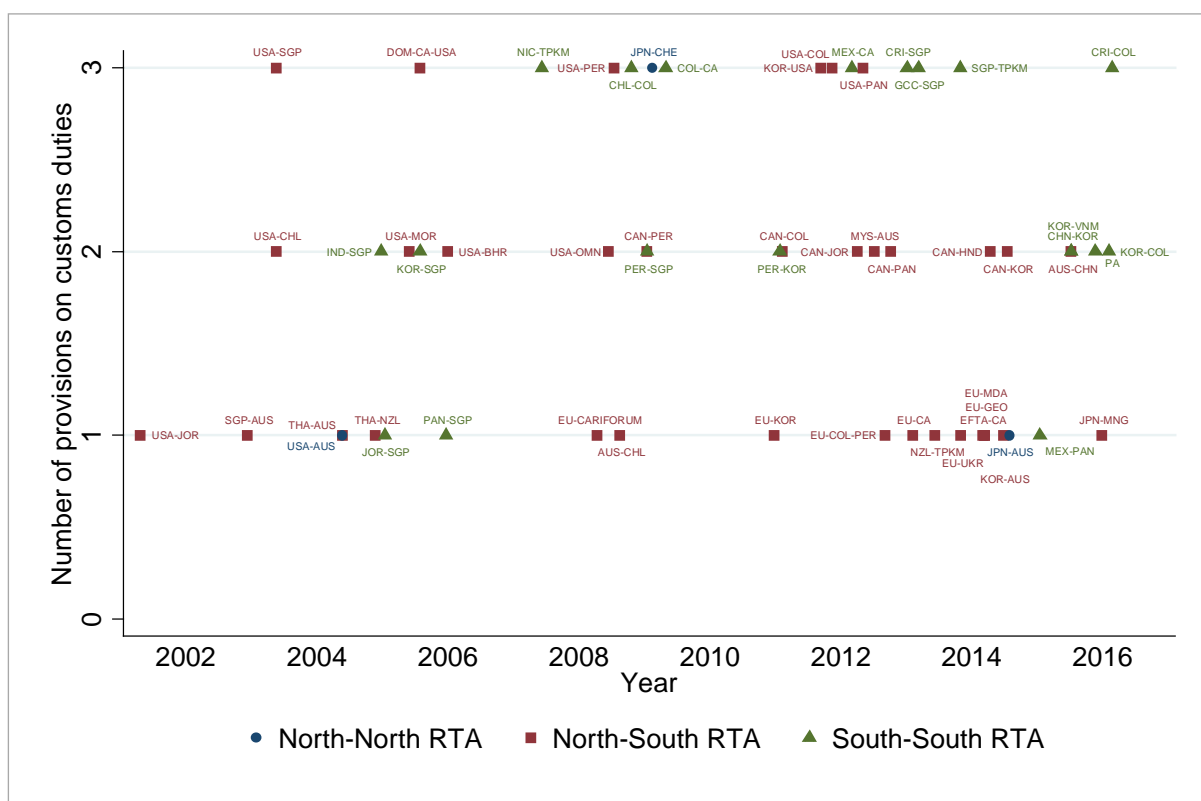


Source: Computations based on WTO RTA database.

Several RTAs for which the practice of not imposing customs duties applies exclusively to digital products transmitted electronically include an additional provision specifying that each party shall determine the customs value of an imported carrier medium bearing a digital product based on the cost or value of the carrier medium alone, without regard to the value of the digital product stored on the carrier medium. Alternatively, a related provision included in the RTA between the Republic of Korea and Singapore stipulates that each party shall determine the customs value of an imported carrier medium bearing a digital product in accordance with the WTO Customs Valuation Agreement.²⁸ In the context of determining the customs value, another specific provision specifies that the committee in trade in goods established under the RTA between the Republic of Korea and the United States shall consult on and endeavour to resolve any difference that may arise between the parties on classification matters related to the application of the provisions on customs duties.

A very few provisions refer also explicitly to the WTO decision of not imposing customs duties on electronic transmissions under paragraph 46 of the Hong Kong Ministerial Declaration of December 2005, or under the 2011 or 2013 WTO Ministerial Decision in relation to the work programme on e-commerce. Unlike in the WTO where the customs moratorium has to be renewed at every Ministerial Conference, the practice of not imposing customs duties on electronic transmissions in RTAs is very often a permanent one. In that context, the RTA between Japan and Switzerland specifies that the parties shall cooperate to make this practice binding within the WTO framework, with a view to considering its incorporation into the RTA. The RTAs to which China is a party with Australia and Macao (China) further stipulate that the parties reserve or may reserve the right to adjust the practice of not imposing customs duties, consistent with any changes to the WTO Ministerial Decision in relation to the work programme on e-commerce.

Figure 26: Evolution of RTAs with provisions on customs duties



Source: Computations based on WTO RTA database.

²⁸ In the case of digital products transmitted through a carrier medium, the WTO Committee on Customs Valuation decided that for "data or instructions (software) recorded on carrier media for data processing equipment", Members would be allowed to value the item either according to its transaction value or on the basis of only the cost or value of the carrier medium (see Customs Valuation G/VAL/5).

Besides the commitment to not impose customs duties, and as shown in Figure 26, other provisions related to customs duties can be found in RTAs. In particular, several agreements clarify that the chapter on e-commerce or the provision regarding customs duties does not prevent the parties from imposing (directly or indirectly) internal taxes or other internal charges on digital products delivered electronically or on content transmitted electronically. Most of this type of provisions further specifies that the possibility to impose these internal taxes or charges is contingent on the fact that such taxes or charges are imposed in a manner consistent with the RTA.

Barriers to trade

As explained previously, several RTAs incorporate a provision recognizing the importance of avoiding (unnecessary) barriers to the use and development of e-commerce. Yet, several other types of provisions, found in 17 RTAs, are more specific by referring explicitly to (unnecessary) trade barriers faced by e-commerce. As highlighted in Figure 27, these types of provisions take different forms. Similar to other provisions, the language of these types of provisions remains highly heterogeneous across agreements.

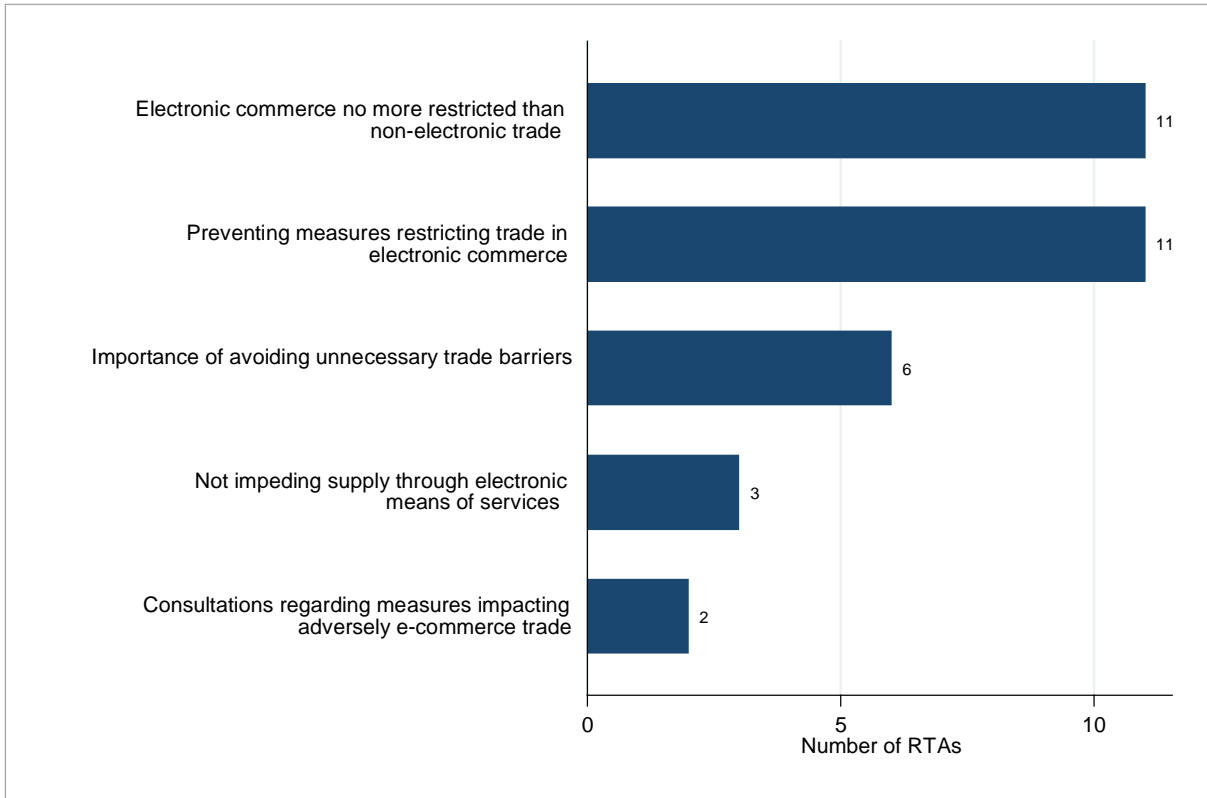
One type of provisions, included in a limited number of agreements, such as the RTAs to which Canada is a party with Colombia, Peru and the Republic of Korea, as well as the Additional Protocol to the Pacific Alliance Framework Agreement, states that the parties recognize the importance of avoiding unnecessary barriers to trade conducted by electronic means. As shown in Figure 28, these RTAs incorporate the highest number of provisions on barriers to trade to e-commerce. In fact, these RTAs along with a few other agreements incorporate two other types of provisions, often complementary, that establish specific commitments to avoid trade barriers to e-commerce.

The first type of provisions specifies that the parties shall endeavour to guard against, prevent or avoid measures having the effect of treating trade conducted by electronic means more restrictively than trade conducted by other means.²⁹ The second provision states that the parties shall endeavour to prevent or guard against measures that unduly hinder trade conducted by electronic means. This type of provisions is worded in firmer language in a couple of RTAs. For instance, the RTA between Japan and Switzerland specifies that each party shall not adopt or maintain measures that unduly prohibit or restrict e-commerce, unless otherwise specified in its list of reservations. Similarly, the RTA between Peru and Singapore stipulates that the parties shall not impose unnecessary barriers on electronic transmission, including digital products.

The RTA between Peru and Singapore as well as the RTAs to which Jordan is party with Singapore and the United States incorporate another type of supplementary provisions stating that each party shall seek to refrain from impeding or shall not impede the supply through electronic means of services committed under the respective RTA, subject to any reservation set out in the agreement. The remaining type of provisions on barriers to trade, found in the RTAs to which New Zealand is a party with Chinese Taipei and Hong Kong (China), further stipulates that the parties agree to consult each other party, upon request, concerning any policies or decisions which may impact adversely on e-commerce aspects of trade between the parties.

²⁹ As discussed in section 5.9, this type of provisions is related to the concept of technological neutrality.

Figure 27: Types of provisions related to trade barriers



Source: Computations based on WTO RTA database.

Figure 28: Evolution of RTAs with provisions on trade barriers



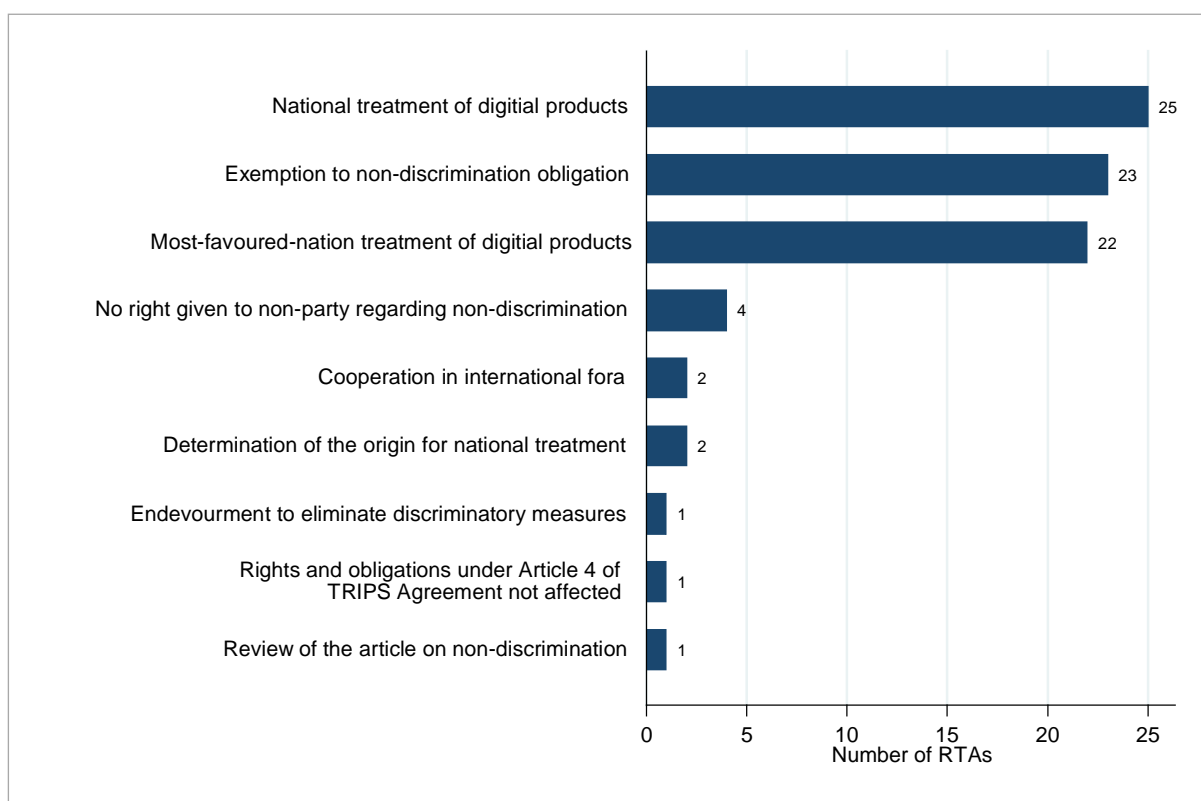
Source: Computations based on WTO RTA database.

Non-discrimination

A limited but increasing number of RTAs, namely 25 agreements, incorporate specific provisions referring to the principle of non-discrimination of digital products. Similar to other categories of e-commerce provisions, provisions related to non-discrimination take different forms, as highlighted in Figure 29.

The most frequent type of provisions related to non-discrimination refers to the principle of national treatment of digital products. Although the language of this type of provisions tends to differ across agreements, the most common provision specifies that no party may or shall accord less favourable treatment to some digital products (transmitted electronically) than it accords to other like digital products (transmitted electronically) on the basis that the digital products receiving less favourable treatment are created, produced, published, stored, transmitted, contracted for, commissioned, or first made available on commercial terms in the territory of the other party. Most RTAs with such provision further specify that no party may or shall accord less favourable treatment to some digital products (transmitted electronically) than it accords to other like digital products (transmitted electronically) on the basis that the author, performer, producer, developer, or distributor of such digital products is a person of another party. In addition, several RTAs stipulate that no party may or shall accord less favourable treatment to some digital products transmitted electronically than accorded to other like digital products transmitted electronically, so as otherwise to afford protection to other like digital products that are created, produced, published, stored, transmitted, contracted for, commissioned, or first made available on commercial terms in its territory. The national treatment provisions in several RTAs not only mention "another party" but also "a non-party". In that context four RTAs further include a footnote clarifying that the provision on national treatment of digital products does not give right to a non-party or a person of a non-party.

Figure 29: Types of provisions on non-discrimination of digital products



Source: Computations based on WTO RTA database.

Most RTAs that incorporate a clause of national treatment of digital products also extend the non-discrimination provisions to the principle of the most-favoured nation treatment.³⁰ Similar to the specific provisions on national treatment, the language of these most-favoured nation treatment provisions varies across RTAs. Most of these provisions specify that no party may or shall accord less favourable treatment to digital products (transmitted electronically) that are created, produced, published, stored, transmitted, contracted for, commissioned, or first made available on commercial terms in the territory of the other party than it accords to like digital products (transmitted electronically) that are created, produced, published, stored, transmitted, contracted for, commissioned, or first made available on commercial terms in the territory of a non-party. Such provision is often complemented by another one stipulating that no party may or shall accord less favourable treatment to digital products (transmitted electronically), whose author, performer, producer, developer, or distributor is a person of another party than it accords to like digital products whose author, performer, producer, developer, or distributor is a person of a non-party.

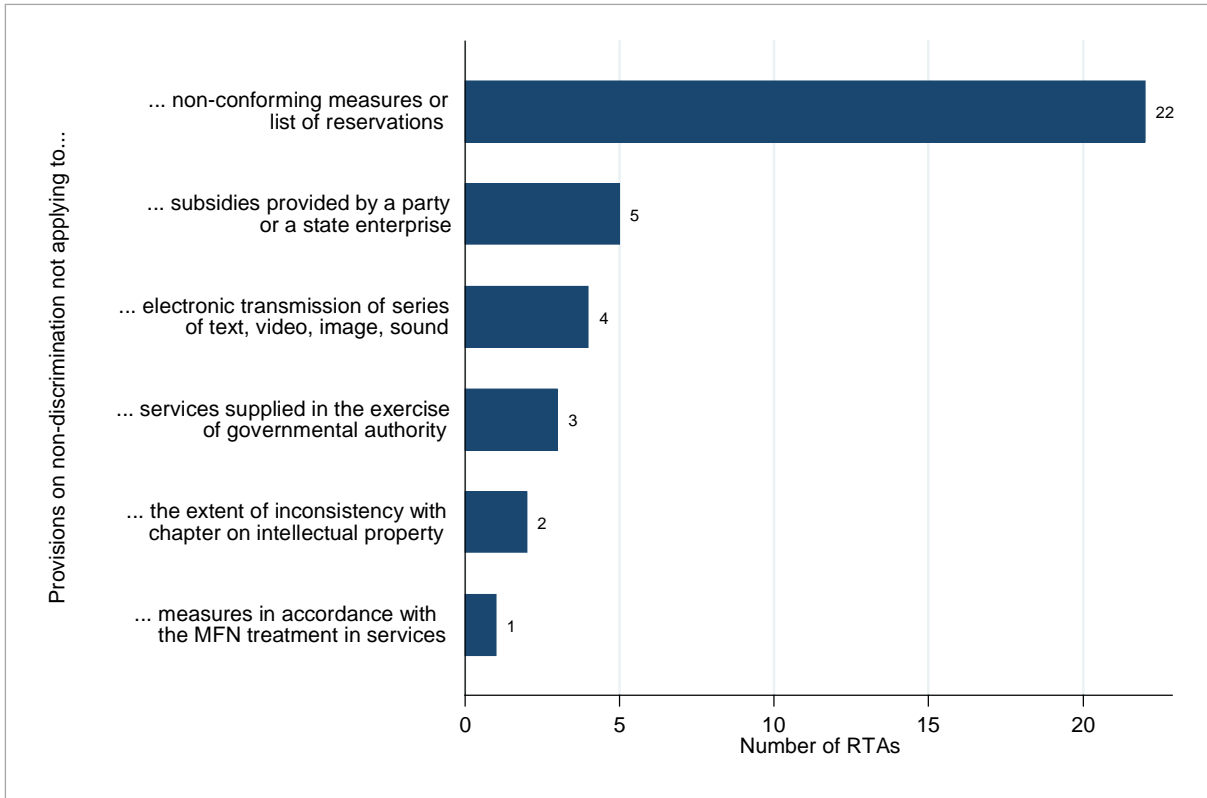
As shown in Figure 30, most RTAs with non-discrimination provisions, namely 23 agreements, incorporate a complementary provision specifying that the provisions on non-discriminatory treatment do not apply to non-conforming measures adopted or maintained in accordance with the RTA's article on non-conforming measures applied to trade in services or investment. A few RTAs also specify that the provisions on non-discrimination for digital products do not apply to subsidies provided by a party or state enterprises. Similarly, a few RTAs exclude explicitly government procurement and services supplied in the exercise of governmental authority from the provisions on non-discrimination for digital products.³¹ A couple of RTAs further stipulate that the provisions on non-discrimination for digital products do not apply to the extent that they are inconsistent with the chapter on intellectual property rights. The RTA between Japan and Australia also includes a note stipulating that nothing in the article on non-discriminatory treatment of digital products shall be construed as affecting rights and obligations of the parties with respect to each other under Article 4 on most-favoured nation of the Agreement on Trade-Related Aspects of Intellectual Property Rights. A limited number of RTAs, including the RTAs negotiated by the United States with the Republic of Korea and Singapore, explain that the provisions on non-discrimination for digital products do not apply to measures affecting the electronic transmission of a series of text, video, images, sound recordings, and other products scheduled by a content provider for aural and/or visual reception, and for which the content consumer has no choice over the scheduling of the series.

The remaining types of provisions related to non-discrimination are only found in the RTAs to which Japan is a party with Switzerland and Mongolia. That is why, as shown in Figure 31, both RTAs incorporate the highest number of provisions related to non-discrimination of digital products. In particular, the RTA between Japan and Switzerland is the only notified agreement specifying that when one of the parties identifies a measure maintained by the other party that does not comply with the principle of less favourable treatment and that has been adopted before the entry into force of the agreement, the other party shall endeavour to eliminate it. Both RTAs further stipulate that in implementing their non-discrimination obligations, each party shall, in good faith, determine whether a digital product is a digital product of a party, of the other party or of a non-party. Such determination shall be made in a transparent, objective, reasonable and fair manner. In addition, the parties shall cooperate in international organizations and fora to foster the development of criteria for the determination of the origin of a digital product, with a view to considering the incorporation of such criteria into the agreement. The RTA between Japan and Mongolia also establishes a sub-committee on e-commerce tasked with discussing any issues related to the chapter on e-commerce, including, where appropriate, the possible review of the article on the non-discriminatory treatment of digital products.

³⁰ The RTAs to which Singapore is a party with India and the republic of Korea and the Additional Protocol to the Framework Agreement of the Pacific Alliance are the only notified agreements with non-discrimination provisions on digital products that only refer to national treatment.

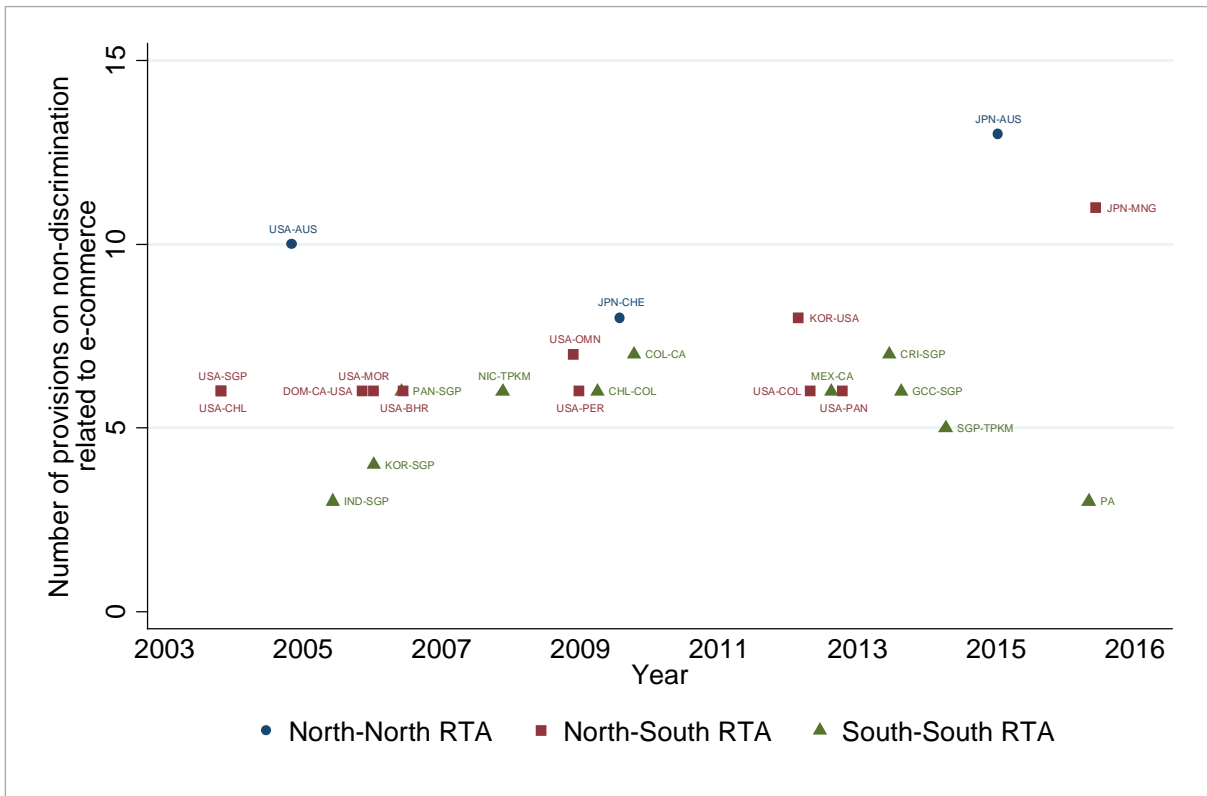
³¹ As discussed above, several RTAs include a relatively similar provision specifying the scope of the e-commerce chapter and excluding subsidies and government procurement from the whole e-commerce chapter and not only from the provision on non-discrimination.

Figure 30: Scope of provisions on non-discrimination



Source: Computations based on WTO RTA database.

Figure 31: Evolution of the number of provisions on non-discrimination

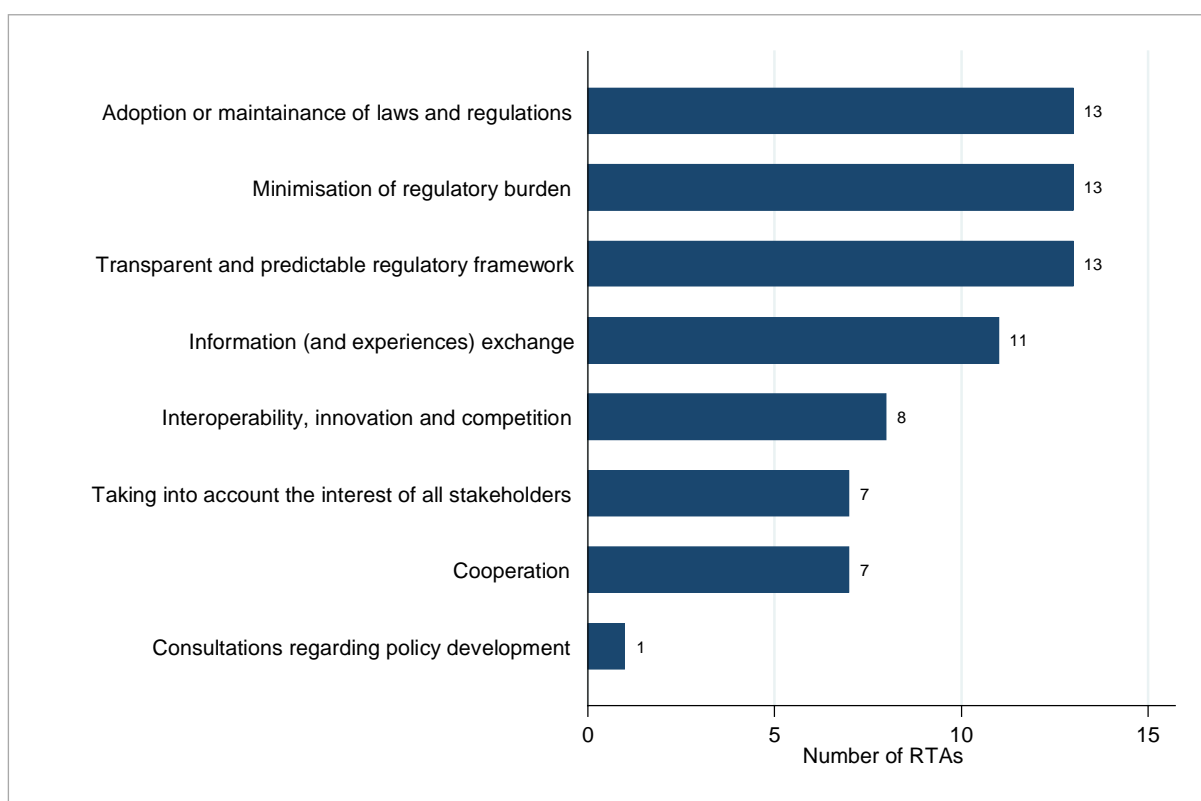


Source: Computations based on WTO RTA database.

Regulatory framework

Besides provisions related to trade rules, such as the practice of not imposing customs duties and non-discriminatory treatment, an increasing number of RTAs, namely 38 agreements include provisions related to the domestic legal framework in which e-commerce take place. These types of provisions often complement other provisions dealing with various specific regulatory aspects related to e-commerce, such as electronic authentication and consumer protection, which will be discussed in detailed in the next subsections. As shown in Figure 32, provisions on regulatory framework range from the adoption of laws regulating e-commerce to commitments to minimize regulatory burden, ensure a transparent regulatory framework and interoperability and take into account stakeholders' interest. Similar to other types of e-commerce provisions, the language and scope differ across agreements.

Figure 32: Types of provisions related to domestic regulatory framework



Source: Computations based on WTO RTA database.

One of the most distinctive provisions refers to the adoption of a general regulatory framework. Most provisions of this type refer explicitly to the United Nations Commission on International Trade Law (UNCITRAL) Model Law on Electronic Commerce. For instance, the RTA between the Republic of Korea and Viet Nam specifies that each party shall endeavour to adopt or maintain its domestic laws and regulations governing electronic transactions taking into account the UNCITRAL Model Law on Electronic Commerce. In several other agreements, the language of this type of provisions is worded in slightly firmer terms. Nine agreements involving mainly Australia stipulate that the parties shall adopt or maintain a domestic legal framework governing electronic transactions based on the UNCITRAL Model Law on Electronic Commerce. The RTAs to which Australia is a party with China and the Republic of Korea further extend this obligation to take into account, as appropriate, other international standards, guidelines and recommendations. A related provision found in the Economic Agreement between the GCC States Member States specifies that the parties shall take all necessary actions to facilitate banking and trade exchange through electronic means of communication, and unify their e-commerce legislation. Similarly, the RTA between the EU and the Republic of Moldova mentions that the Republic of Moldova undertakes to gradually approximate its legislation to the EU legislation on telecommunication services, including on e-commerce.

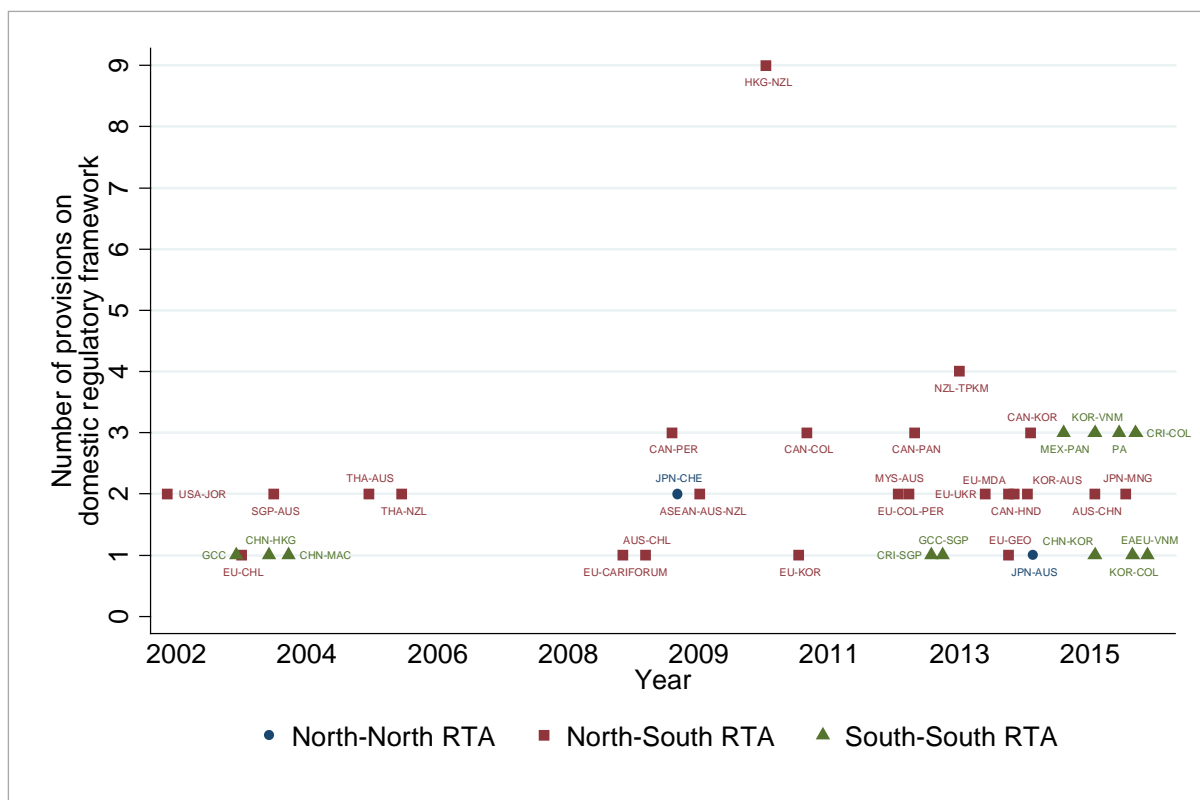
Another type of provision, which sometimes complements the obligation to adopt and maintain a domestic legal framework, refers to the regulatory burden on e-commerce. The language of this type of provision is particularly heterogeneous. The RTA between the United States and Jordan was one of the first RTAs to incorporate such a provision. In particular, the agreement reaffirms the principles announced in their joint statement on e-commerce, according to which the parties should avoid imposing unnecessary regulations or restrictions on e-commerce. Similarly, the RTA between Japan and Switzerland specifies that the parties shall endeavour to ensure that all their measures affecting e-commerce are not more burdensome than necessary. The RTA between Japan and Mongolia includes a slightly more specific provision, which states that each party shall ensure that all its measures affecting e-commerce are not more burdensome than necessary to meet legitimate policy objectives. In several other RTAs, this provision is couched in firmer terms. For instance, the RTAs to which Australia is a party with Chile, China, Malaysia, Singapore and Thailand stipulate that the parties shall minimise the regulatory burden on e-commerce. As discussed in the section on private sector participation below, this provision is sometimes complemented by the obligation to ensure that regulatory frameworks support industry-led development of e-commerce. More generally, these provisions on regulatory burden are closely related to the provisions related to avoiding unnecessary barriers to trade discussed previously. In that context, the RTA between Hong Kong (China) and New Zealand specifies that the parties agree, at the request of either party, to consult each other concerning the development of policy for the conduct of e-commerce and any policies or decisions potentially impacting adversely e-commerce aspects of their mutual trade.

Several other provisions related to the overall regulatory framework governing e-commerce refer to certain principles, such as transparency and predictability.³² For instance, several agreements, such as the RTAs between Costa Rica and Colombia and between Mexico and Panama, recognize the importance of clarity, transparency and predictability in their domestic regulatory frameworks in facilitating, to the maximum extent possible, the development of e-commerce. Similarly, the RTA between the United States and Jordan reaffirms one of the principles laid down in their joint statement on e-commerce, explaining that government actions, when needed, should be transparent, minimal, non-discriminatory, and predictable to the private sector. Formulated differently, the RTAs negotiated by Japan with Switzerland and Mongolia specify that the parties shall, respectively, endeavour to ensure or ensure that all the measures affecting e-commerce are administered in an objective, reasonable and impartial manner. The RTAs to which New Zealand is a party with Hong Kong (China) and Chinese Taipei also include several related provisions, such as the parties' agreement to promote the efficient functioning of e-commerce domestically and internationally by, wherever possible, developing open domestic regulatory frameworks and to endeavour to ensure that policy responses in respect of e-commerce are flexible and take into account developments in a rapidly changing technology environment. The RTA between New Zealand and Chinese Taipei further extends this commitment to providing a predictable and simple legal environment for e-commerce, taking into account international norms and practices. Likewise, the RTA between New Zealand and Hong Kong (China), which, as highlighted in Figure 33, incorporates the most detailed provisions on the general domestic legal framework for e-commerce, adds that the parties agree to ensure that their regulatory regimes support the free flow of services, including the development of innovative ways of developing services, using electronic means.

Besides transparency and predictability, a few other provisions refer to the principle of interoperability and taking into account stakeholders' interest. Several agreements, such as the RTAs to which Canada is a party with Colombia, Honduras, the Republic of Korea, Panama and Peru, recognize the importance of interoperability, innovation, and competition in facilitating e-commerce. Some of these agreements and a few others, such as the Additional Protocol to the Pacific Alliance Framework Agreement, further recognize the importance of ensuring that global and domestic e-commerce policy takes into account the interest of all stakeholders, including business, consumers, non-government organizations and relevant public institutions.

³² Provisions related or referring to the principle of technological neutrality are discussed in the next subsection.

Figure 33: Evolution of RTAs with provisions on domestic regulatory framework



Source: Computations based on WTO RTA database.

The remaining types of provisions on domestic regulatory framework are related to the exchange of information and experience on relevant legislation as well as cooperation activities. Several RTAs, such as the agreements negotiated by Singapore with Costa Rica and the GCC states, identify sharing information and experiences on laws, regulations and programmes in the sphere of e-commerce as a possible area of cooperation. Similarly, several RTAs to which the EU is a party with for instance the Republic of Korea and the CARIFORUM states mention the exchange of information on not only the parties' respective legislation relevant for the development of e-commerce but also on the implementation of such legislation. As discussed in the next subsections, the provisions on information and experience exchanges on regulatory framework often mention also specific issues related to e-commerce, such as electronic authentication or online consumer protection. Other cooperation forms include research and training activities mentioned in the RTA between the ASEAN states, Australia and New Zealand and aimed at exploring ways in which a developed party or the parties could provide assistance to the developing parties in implementing an e-commerce legal framework. Similarly, the RTAs negotiated by China with Hong Kong (China) and Macao (China) refer to cooperation in specialized projects on the study and formulation of rules, standards and regulations of e-commerce or e-business. A few other cooperation provisions on domestic regulatory framework are less specific about the actual form of cooperation. For instance, the RTA between New Zealand and Chinese Taipei stipulates that the parties agree to cooperate in promoting with respect to the use of e-commerce the international alignment of laws and effective regulatory coordination.

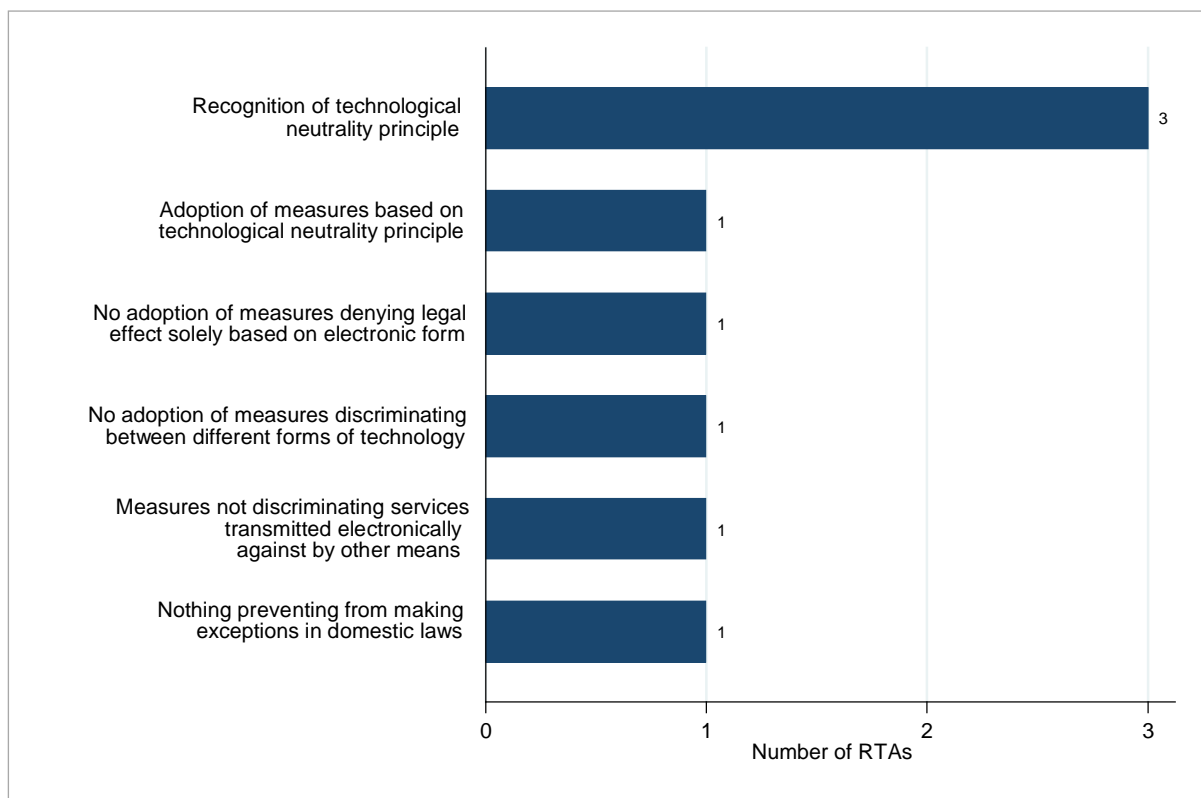
Technological neutrality

As explained above, several RTAs incorporate specific provisions on non-discrimination of digital products with respect to the country of origin. Four agreements involving Australia and Japan incorporate provisions related to the non-discriminatory treatment of electronic transaction or services transmitted electronically with respect to the type of technological means used, which is encompassed in the concept of technological neutrality. As shown in Figure 35, provisions related to technological neutrality are particularly heterogeneous.

The most common form of this type of provisions, found in the RTAs to which Japan is a party with Australia, Mongolia and Switzerland, specifies that the parties recognize the principle of technological neutrality in e-commerce. The RTA between Japan and Switzerland further clarifies that the principle of technological neutrality signifies that any provisions related to trade in services do not distinguish between the different technological means through which a service may be supplied. Another idiosyncratic provision included in this agreement stipulates that each party shall ensure that its measures governing e-commerce do not discriminate the supply of services transmitted electronically against the supply of like services by other means.

The other types of provisions related to technological neutrality are only found in the RTAs to which Australia is a party with Chile and Japan. While the provisions in the RTA between Australia and Chile are worded in positive obligations, those in the RTA between Australia and Japan are worded in negative terms. In fact, the RTA between Australia and Japan specifies that neither party shall adopt or maintain measures regulating electronic transactions that: (i) deny the legal effect, validity or enforceability of a transaction, including a contract, solely on the grounds that it is in the form of an electronic communication; or (ii) discriminate between different forms of technology, unless such measures are provided for in its laws and regulations and are administered in a reasonable, objective and impartial manner. Conversely, the RTA between Australia and Chile stipulates that each party shall adopt or maintain measures regulating electronic transactions based on the following principles: (i) a transaction including a contract shall not be denied legal effect, validity or enforceability solely on the grounds that it is in the form of an electronic communication; and (ii) laws should not discriminate arbitrarily between different forms of technology. The agreement further explains that nothing prevents the parties from making exceptions in their domestic laws to these general principles.

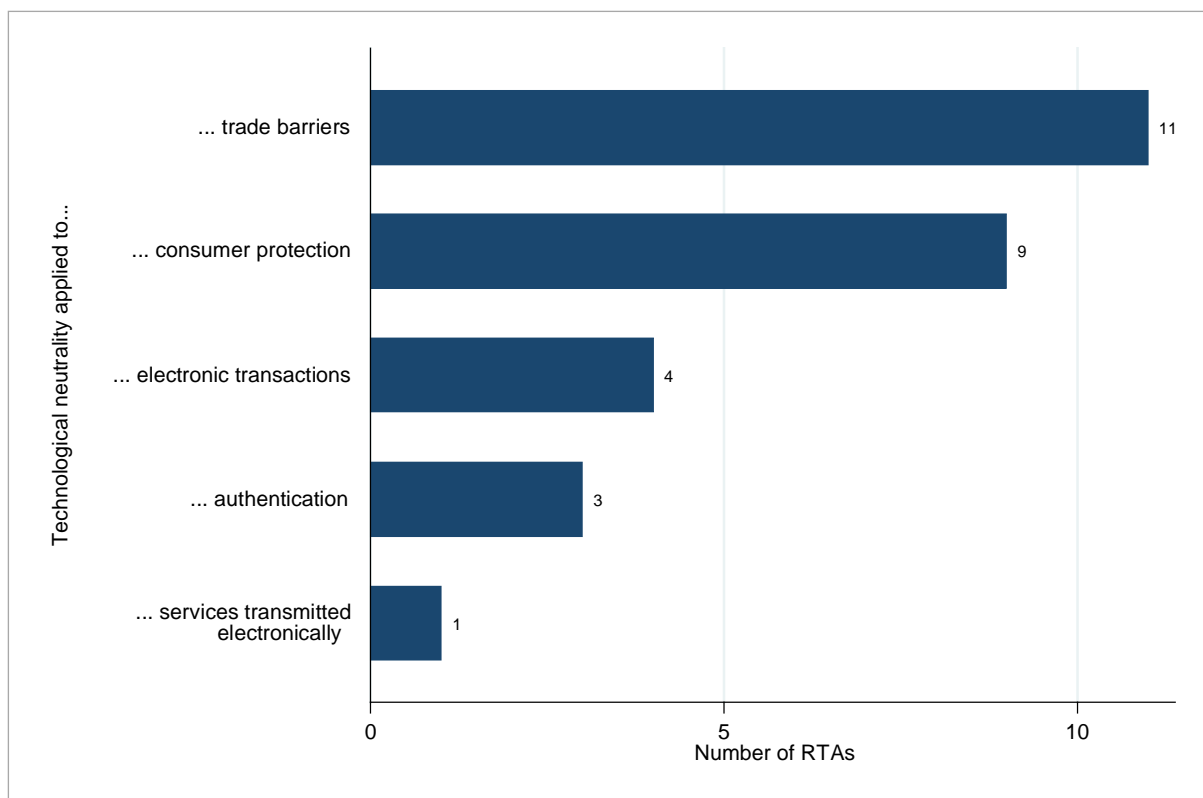
Figure 34: Types of provisions on technological neutrality



Source: Computations based on WTO RTA database.

As shown in Figure 35 and discussed in greater details previously and below, the principle of technological neutrality is implicit in a few other types of provisions. For instance, several RTAs require the parties to endeavour to guard against measures having the effect of treating trade conducted by electronic means more restrictively than trade conducted by other means. Similarly, several RTAs include a provision stipulating that the parties shall provide protection for consumers using e-commerce that is at least equivalent to that provided for consumers of other forms of commerce. Another provision, found in a few RTAs, specifies that legislation for electronic signature should not deny a signature legal validity solely on the basis that the signature is in electronic form.

Figure 35: Areas of technological neutrality

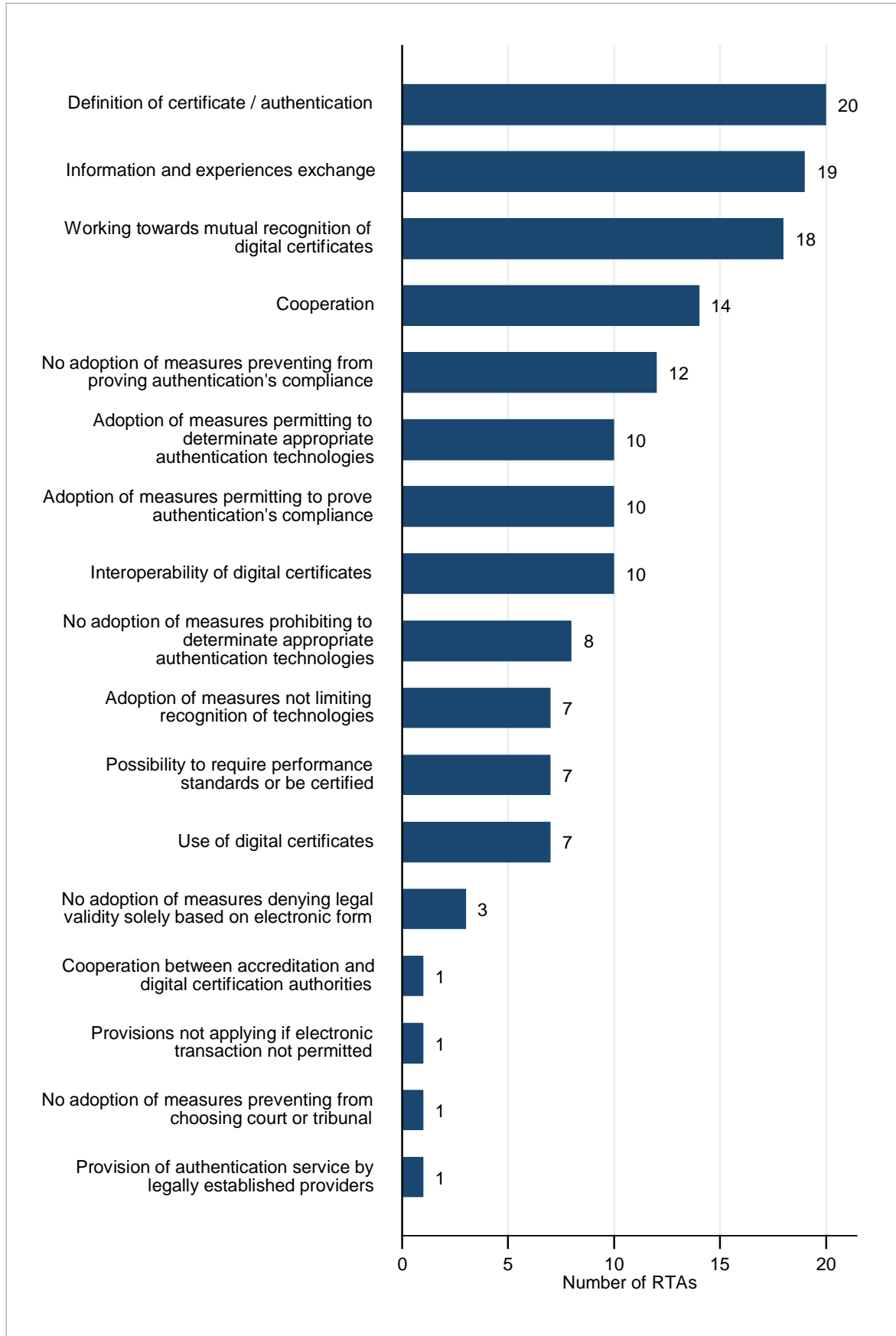


Source: Computations based on WTO RTA database.

Electronic authentication and signatures

With the growing use of electronic transactions for trade, many governments have attempted to regulate how such transactions are authenticated. The UNCITRAL Model Law on Electronic Commerce contains some provisions on how states should treat and regulate electronic authentication and signatures. It also provides the state with room to include exceptions. While, as explained earlier, several RTAs require the parties to maintain domestic legal frameworks regulating electronic transactions based on or taking into account the UNCITRAL Model Law, an increasing number of RTAs, namely 48 agreements, include provisions explicitly addressing electronic authentication. As highlighted in Figure 36, a broad range of heterogeneous provisions related to electronic authentication are incorporated in RTAs. Part of this heterogeneity stems from the language and scope of these provisions that are often found in an article dedicated to electronic authentication and signatures.

Figure 36: Types of provisions related to electronic authentication



Source: Computations based on WTO RTA database.

Most RTAs with detailed provisions on electronic authentication provide a definition of authentication, electronic authentication, electronic certification, electronic certificate or electronic signature. The language of these definitions differs in some agreements. For instance, in the RTA between Australia and the Republic of Korea, electronic signature means information in the form of electronic data attached to, or logically combined with, an electronic record for the purpose of utilising it to identify the signer and to prove that the signer has signed the electronic record. A different definition can be found in the RTAs to which Japan is a party with Australia and Switzerland, defining electronic signature as a measure taken with respect to information that can be recorded in an electromagnetic record and which fulfils both of the following requirements: (i) that the measure indicates that such information has been approved by a person who has taken such measure; and (ii) that the measure confirms that such information has not been altered. The RTA between Japan and Switzerland further specifies that the provisions on electronic signatures and certification services shall not apply to any transactions or communications that have significant relevance to those transactions, if those transactions are not permitted to be made electronically under each party's laws and regulations.

A few RTAs include a provision explicitly promoting the use of electronic signatures. For instance, under the RTA between Chinese Taipei and New Zealand, the parties agree to endeavour to ensure that policy responses in respect of e-commerce encourage the use of electronic signatures and electronic certification in order to ensure authenticity, integrity and confidentiality, and prevent fraud. Similarly, the RTAs to which China is a party with Australia and the Republic of Korea require each party to encourage the use of digital certificates in the business sector.

Other types of provisions on electronic authentication refer specifically to measures related to electronic authentication. Some of these provisions require the parties to adopt measures aimed at specific objectives, while other provisions, worded in negative terms, require the parties to abstain from adopting specific measures. Similar to other types of e-commerce provisions, the language differs across many RTAs. A relatively common provision specifies that none of the parties may or shall adopt or maintain legislation for electronic authentication that would prevent parties from having the opportunity to establish before judicial or administrative authorities that their electronic transaction complies with any legal requirements with respect to authentication. Alternatively, a related provision, found in several RTAs, requires the parties to adopt or maintain measures that permit parties to electronic transaction to have the opportunity to prove in a court or before judicial or administrative authorities that their electronic transactions comply with any legal requirement. In addition to a chapter dedicated to e-commerce, the RTA between the Republic of Korea and Singapore also includes an article on e-commerce in its cooperation chapter with this type of provisions on electronic authentication. The RTA between Japan and Switzerland further stipulates the parties shall not adopt or maintain legislation for electronic signatures that would prevent parties to an electronic transaction from choosing the court or tribunal to which they bring any dispute concerning the transaction.

The provisions on the right to prove authentication's compliance are often complemented by another one related to the right to choose the authentication technologies. In particular, this supplementary provision, included in several RTAs, stipulates that the parties shall maintain or adopt measures regulating electronic authentication that permit parties or participants in electronic transactions to determine the appropriate authentication technologies and implementation models. The RTA between the ASEAN states, Australia and New Zealand include such provision, which explicitly refers to measures for electronic authentication based on international norms. As explained above, the RTA between the Republic of Korea and Singapore sets out a similar provision in an article on e-commerce in its cooperation chapter. Alternatively, a related provision, found in a couple of RTAs, specifies that none of the parties may or shall adopt or maintain legislation for electronic authentication that would prohibit parties to an electronic transaction from mutually determining the appropriate authentication methods for that transaction.

Another complementary type of provisions incorporated in a limited number of RTAs specifies that the parties shall endeavour to adopt or maintain or shall maintain measures for electronic authentication that do not limit the recognition of authentication technologies and implementation models. The RTA between Australia and Chile incorporates a similar provision but adds that measures regulating electronic authentication do not limit the recognition of authentication technologies and implementation models, unless there is a domestic or international legal requirement to the contrary.

Another provision related to the principle of technological neutrality and included in the RTAs to which the Republic of Korea is a party with the United States and China specifies that neither party may adopt or maintain legislation for electronic authentication or signature that would deny a signature legal validity solely on the basis that the signature is in electronic form. Worded slightly differently, the RTA between Singapore and Chinese Taipei stipulates that neither party may deny a signature legal validity solely on the basis that it is an electronic signature.

These provisions related to domestic measures for electronic authentication are sometimes complemented by another provision clarifying that the parties may require that, for transactions where a high degree of reliability and security is required, the method of authentication meet certain security standards or be certified by an authority accredited in accordance with that party's laws and regulations. In a few RTAs, including the RTA between the United States and the Republic of Korea, the requirement is conditioned on (i) serving a legitimate governmental objective and (ii) being substantially related to achieving that objective. A related provision, couched in firmer terms and only found in the RTA between China and the Republic of Korea, explicitly states that for China the authentication service must be provided by a legally established authentication service provider, which shall be approved by an authority accredited in accordance with its domestic law for any electronic signature to be certified by a third party to the electronic transaction. As shown in Figure 37, the RTA between China and the Republic of Korea incorporate the highest number of specific provisions on electronic authentication.

Several RTAs further call on or require the parties to work towards the mutual recognition of digital certificates at government levels. Several of these provisions refer only to digital certificates based on internationally accepted standards. For instance, the RTA between Australia and Chile stipulates that the parties shall work towards the mutual recognition of digital certificates and electronic signatures at governmental level, based on internationally accepted standards. A related provision, found in the Additional Protocol to the Pacific Alliance Framework Agreement, specifies that the parties may consider the recognition of advanced or digital electronic signature certificates issued by certification service providers operating in the territory of any party in accordance with the procedure determined by its legislation.

A few RTAs also include provisions promoting the interoperability of digital certificates. The RTA between Canada and Colombia and the Additional Protocol to the Pacific Alliance Framework Agreement define interoperability as the ability of two or more systems or components to exchange information and to use the information that has been exchanged. The language of the provisions on interoperability differs across several RTAs. For instance, under the RTA between Chinese Taipei and New Zealand, the parties agree to endeavour to ensure that policy responses in respect of e-commerce promote interoperability of infrastructures, such as secure electronic authentication and payments. In other agreements, the provision on interoperability is couched in relatively firmer terms. Several RTAs to which Australia is a party specify that the parties shall encourage the interoperability of digital certificates used by business. The provision found in the Additional Protocol to the Pacific Alliance Framework Agreement is slightly more specific by stipulating that the parties shall establish mechanisms and approval criteria that promote the interoperability of electronic authentication between them according to international standards.

Similar to other issues related to e-commerce addressed in RTAs, many provisions on electronic authentication take also the form of cooperation provisions. Several RTAs include cooperation provisions recognizing or affirming the importance of sharing information and experiences on laws, regulations, and programs in the sphere of e-commerce, including those related to electronic authentication or signatures. The provision included in the RTA between Australia and Japan is more specific by specifying that the parties shall, as appropriate, share information and experiences, including on related laws, regulations and best practices with respect to e-commerce, in relation to, *inter alia*, electronic signatures. Other types of cooperation are found in a more limited number of RTAs. For instance, all the RTAs to which the EU is a party with detailed provisions on e-commerce specify that the parties shall maintain a dialogue on regulatory issues raised by e-commerce, which will or shall address various issues, including the recognition of certificates of electronic signatures issued to the public and the facilitation of cross-border certification services. Similarly the RTA between New Zealand and Hong Kong China mentions the parties' agreement to cooperate in promoting interoperability of infrastructures, such as secure electronic authentication and payments. Another type of provisions, found only in the RTA between the Republic of Korea and Peru, commits the parties to establish cooperation mechanisms between the national accreditation and digital certification authorities for electronic transactions.

Figure 37: Evolution of RTAs with provisions on electronic authentication



Source: Computations based on WTO RTA database.

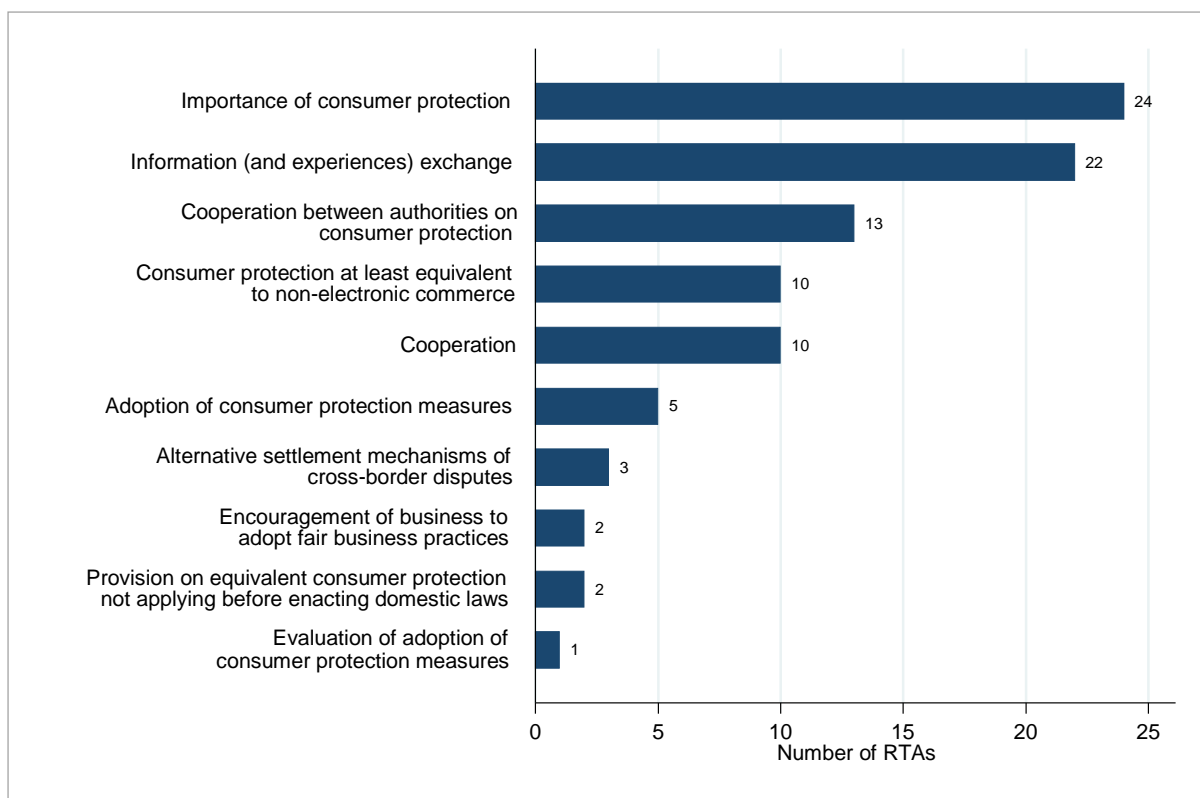
Online consumer protection

Part of the success of e-commerce hinges on consumer trust in e-commerce and the extent to which consumers' rights are adequately protected. In that context, an increasing number of RTAs, namely 49 agreements, include provisions on consumer protection.³³ Similar to other provisions on e-commerce, provisions related to consumer protection take different forms, as highlighted in Figure 38. Many of these provisions are found in a specific article on online consumer protection in the chapter on e-commerce. Others provisions are included in the article on cooperation.

Although the language differs across several RTAs, one of the most common types of provisions on consumer protection recognizes the importance of the protection of consumers engaged in e-commerce. In particular, several RTAs specify that the parties recognize the importance of maintaining and adopting transparent and effective measures to protect consumers from fraudulent and deceptive or misleading commercial practices when they engage in e-commerce. This type of provisions found in the RTAs to which Japan is a party with Australia, Mongolia and Switzerland also mention the importance of maintaining and adopting measures conducive to the development of consumer confidence.

³³ A few RTAs include also provisions on consumer protection that are not specific to e-commerce, such as the agreement between the Republic of Korea and New Zealand, which incorporates an article on cross-border consumer protection in its chapter on competition and consumer policy. The article listing the definitions relevant to the chapter in question further explains that for the Republic of Korea consumer protection laws include, among other things, the Consumer Protection in Electronic Commerce Act.

Figure 38: Types of provisions related to consumer protection



Source: Computations based on WTO RTA database.

Another type of provisions couched in relatively firmer terms but found in a limited number of RTAs calls on or requires the parties to adopt measures aimed at protecting consumers engaged in e-commerce. For instance, the RTA between the Republic of Korea and Viet Nam specifies that the parties shall endeavour to adopt or maintain transparent measures to protect consumers from fraudulent and deceptive commercial practices when they engage in e-commerce. Similarly, in the RTAs to which New Zealand is a party with Hong Kong (China) and Chinese Taipei, the parties agree to work to build consumer and business confidence by maintaining consumer laws relating to e-commerce and by ensuring the protection of intellectual property rights, while also enabling the application of e-commerce and business innovation. A more detailed provision is found in the RTA between Australia and Chile, which stipulates that the parties shall adopt or maintain measures regulating consumer protection where: (i) consumers participating in e-commerce should be afforded transparent and effective consumer protection; and (ii) businesses engaged in e-commerce should pay due regard to the interests of consumers and act in accordance with fair business, advertising and marketing practices.

A related provision, which is only found in the Additional Protocol to the Pacific Alliance Framework Agreement, requires each party to evaluate the adoption of policies to encourage suppliers operating through e-commerce to comply with consumer protection rules in the territory of the party in which the consumer is located. As highlighted in Figure 39 and discussed below, the Additional Protocol to the Pacific Alliance Framework Agreement incorporates the highest number of specific provisions on consumer protection.

Another type of provision, which sometimes complements the commitment to adopt consumer protection measures, is related to the principle of technological neutrality. For instance, the RTA between Japan and Australia states that the parties recognize the importance of maintaining and adopting measures which provide, for consumers using e-commerce, protection that is at least equivalent to that provided for consumers using other forms of commerce. Several other agreements, such as the RTAs to which Australia is a party with China and Singapore, incorporate a provision formulated in firmer terms, according to which the parties shall provide, to the extent possible, protection for consumers using e-commerce that is at least equivalent to that provided

for consumers of other forms of commerce under their respective laws. In several of these RTAs, this provision is further qualified by specifying that each party shall provide such protection in a manner it considers appropriate. A few RTAs also explicitly link adopting or maintaining measures to protect consumers engaged in e-commerce to providing a level of protection at least equivalent to the level of protection afforded in other forms of commerce. The RTAs between the Republic of Korea and Viet Nam and between the ASEAN states, Australia and New Zealand further explain that a party shall not be obliged to apply such commitment before the date on which that party enacts domestic laws or regulations or adopts policies on protection for consumers using e-commerce

A different type of provision, only included in the RTA between Australia and Chile and in the Additional Protocol to the Pacific Alliance Framework Agreement, refers to business practices. The Additional Protocol to the Pacific Alliance Framework Agreement stipulates that the parties shall undertake to seek to standardize the information to be provided to consumers in e-commerce, which shall at least consider terms, conditions of use, prices, additional charges if applicable, and forms of payment. A much more detailed provision, found in the RTA between Australia and Chile, specifies that each party shall encourage business to adopt three fair business practices when it engages in e-commerce with consumers. In particular, businesses should provide accurate, clear and easily accessible information about themselves, the goods or services offered, and about the terms, conditions and costs associated with a transaction to enable consumers to make an informed decision about whether to enter into the transaction. The agreement further states that in order to avoid ambiguity concerning the consumer's intent to make a purchase, the consumer should be able, before concluding the purchase, to identify precisely the goods or services he or she wishes to purchase; identify and correct any errors or modify the order; express an informed and deliberate consent to the purchase; and retain a complete and accurate record of the transaction. Consumers should also be provided with easy-to-use, secure payment mechanisms and information on the level of security such mechanisms afford.

More recently, a provision related to alternative mechanisms for the settlement of cross-border disputes has been incorporated in a couple of RTAs negotiated by several Latin American countries. The RTA between Mexico and Panama specifies that the parties shall, to the extent possible, promote alternative transboundary dispute settlement mechanisms by electronic means and relating to consumer protection in cross-border electronic transactions. The RTA between Colombia and Costa Rica and the Additional Protocol to the Pacific Alliance Framework Agreement further state that the parties may or shall evaluate alternative mechanisms for the settlement of cross-border disputes.

The remaining provisions on consumer protection are mainly about cooperation. Several RTAs recognize or affirm the importance of sharing information and experiences on laws, regulations, and programs in the sphere of e-commerce, including those related to consumer protection. Other RTAs refer to cooperation on consumer confidence. For instance, the RTAs to which Japan is a party with Australia and Mongolia specify that the parties shall, as appropriate, share information and experiences, including on related laws, regulations and best practices with respect to e-commerce, in relation to, *inter alia*, consumer confidence. Similarly, under the Additional Protocol to the Pacific Alliance Framework Agreement, the parties undertake to exchange information on suppliers, who have been penalized for infringement of consumer rights in e-commerce, such as fraudulent and deceptive business practices.

Other more general cooperation provisions, incorporated in the RTAs to which the EU is a party with specific e-commerce provisions, require the parties to maintain a dialogue on regulatory issues raised by e-commerce addressing the protection of consumers in the ambit of e-commerce. More detailed cooperation provisions can be found in the Additional Protocol to the Pacific Alliance Framework Agreement in which the parties undertake to (i) promote the conclusion of cooperation agreements on the cross-border protection of consumer rights in e-commerce; (ii) promote training initiatives related to the protection of consumer rights in e-commerce and to the prevention of practices violating those right; and (iii) consider jointly other forms of cooperation aimed at protecting consumer rights in e-commerce.

Another type of cooperation provisions, found in several RTAs, refers explicitly to the authorities in charge of consumer protection. In its most common form, the provision states that the parties recognize the importance of cooperation between the parties' respective national consumer protection agencies or competent authorities in charge of consumer protection on activities related to cross-border e-commerce in order to enhance consumer protection or welfare. In some RTAs, the provision is slightly more specific. For instance, under the RTA between the ASEAN states, Australia and New Zealand, cooperative research and training activities may include, but are not limited to, encouraging cooperation between the relevant authorities to facilitate prompt investigation and resolution of fraudulent incidents relating to e-commerce transactions. Similarly, the RTA between the United States and the Republic of Korea stipulates that each party's national consumer protection enforcement agencies shall endeavour to cooperate with those of the other party, in appropriate cases of mutual concern, in the enforcement of laws against fraudulent and deceptive commercial practices in e-commerce.

Figure 39: Evolution of RTAs with provisions on consumer protection

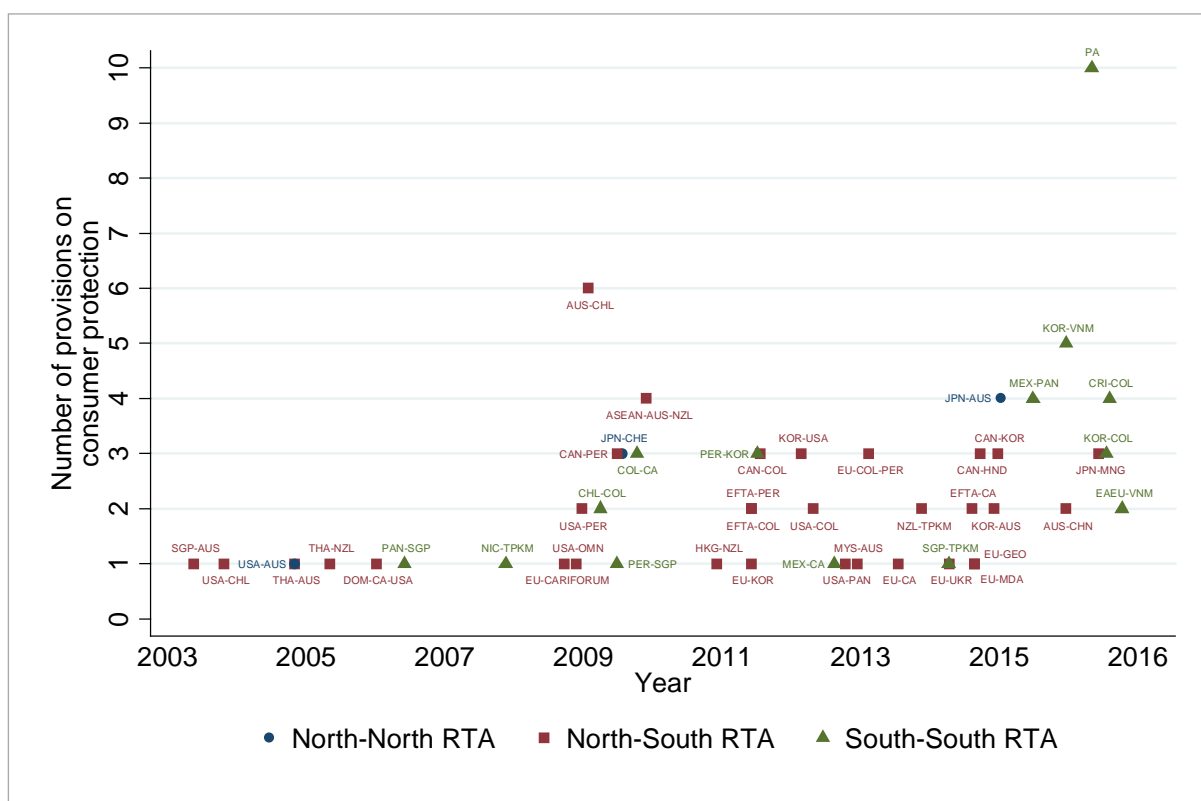
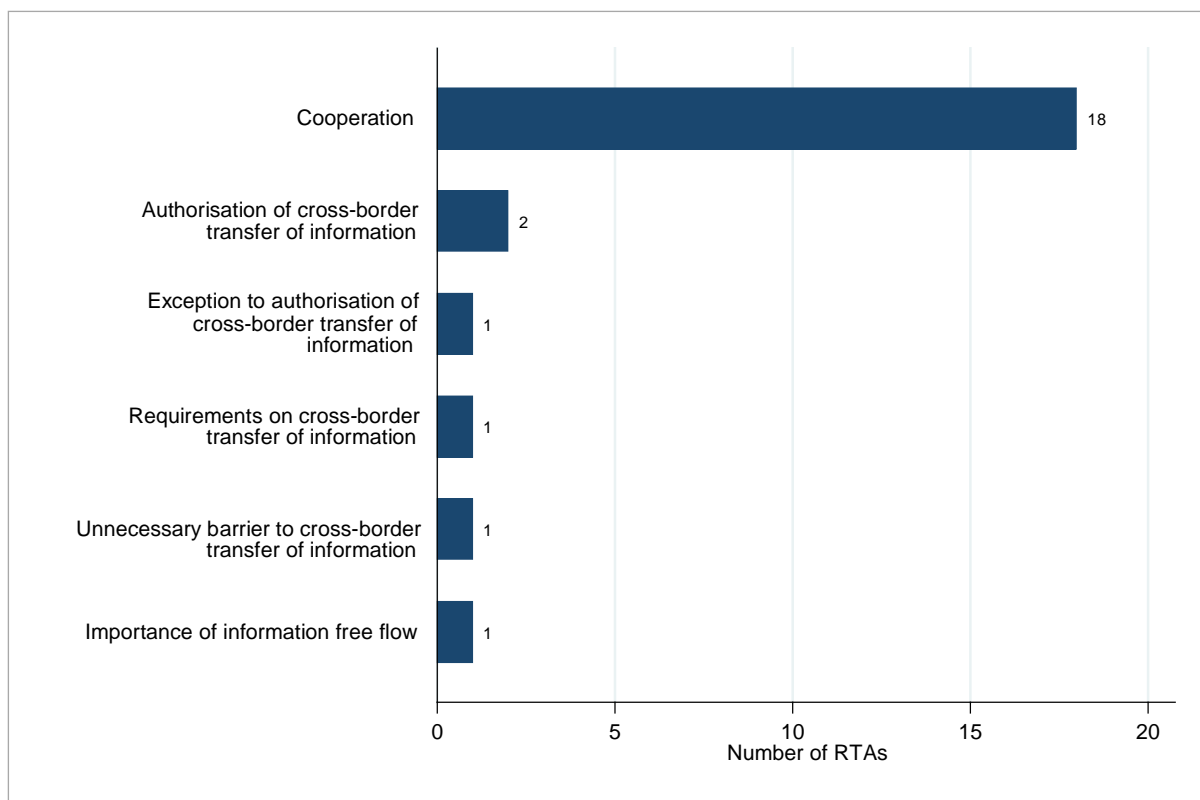


Figure 40: Types of provisions related to cross-border transfer of information

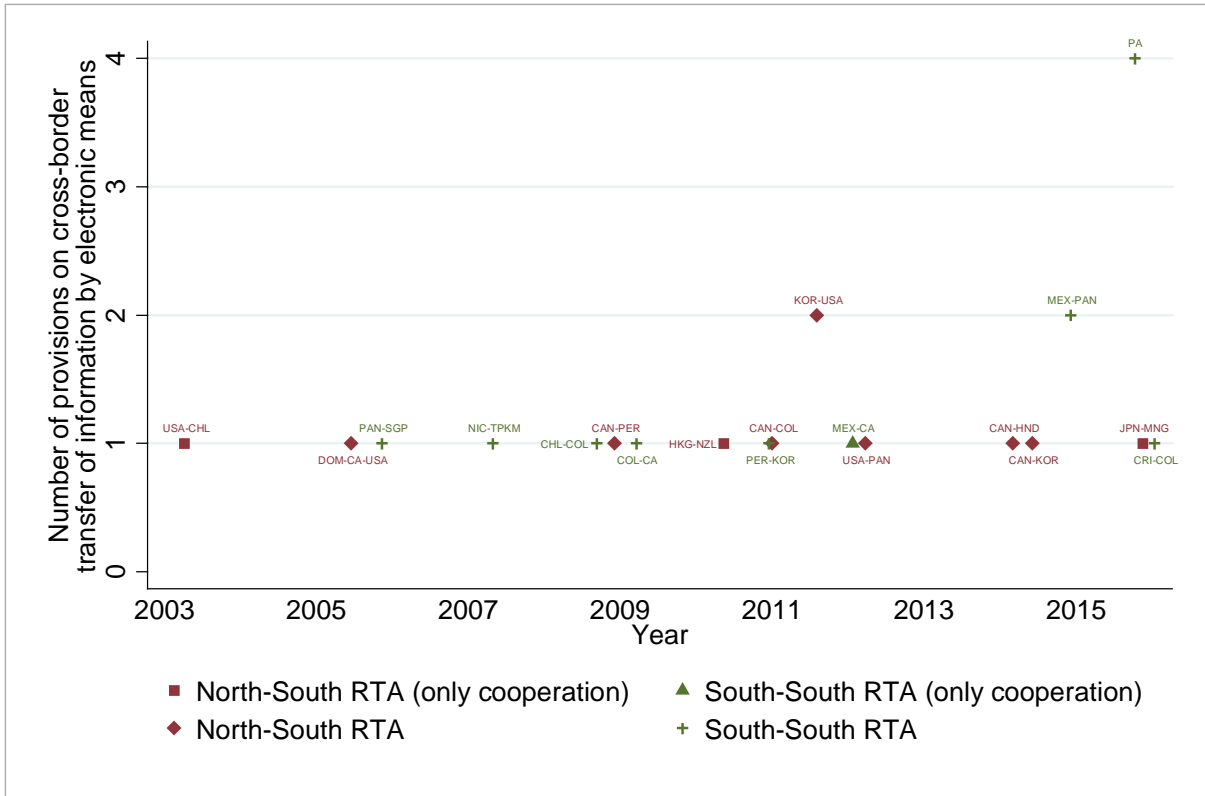


Source: Computations based on WTO RTA database.

The remaining types of provisions on cross-border transfer of information by electronic means are found in a specific article included in the RTAs between the United States and the Republic of Korea, and Mexico and Panama as well as in the Additional Protocol to the Pacific Alliance Framework Agreement. As a result, these RTAs incorporate the highest number of provisions on cross-border flows of information, as highlighted in Figure 41.

In particular, the RTA between the United States and the Republic of Korea recognizes the importance of the free flow of information in facilitating trade and commits the parties to endeavour to refrain from imposing or maintaining unnecessary barriers to electronic information flows across borders. More recently, the Additional Protocol to the Pacific Alliance Framework Agreement recognizes that the parties may have their own regulatory requirements concerning the transfer of information by electronic means. Each party shall further allow the cross-border transfer of information by electronic means, including personal information, for the exercise of the business of a covered person. A related provision is included in the RTA between Mexico and Panama, which specifies that each party shall allow their persons and the other party's persons to transmit electronic information to and from its territory, as required in accordance with applicable legislation on the protection of personal data and taking into consideration international practices. That being said, another provision found in the Additional Protocol specifies that the parties are not prevented from adopting or maintaining measures inconsistent with the provision on cross-border transmission of information in order to achieve a legitimate public policy objective, provided that such measures are not applied in a manner which would constitute a means of arbitrary or unjustifiable discrimination or a disguised restriction on trade.

Figure 41: Evolution of RTAs with provisions on cross-border transfer of information



Source: Computations based on WTO RTA database.

Personal information protection

A large part of the data being collected, stored and transferred in relation to electronic business transactions is personal data. This data collection raises concerns regarding privacy and data protection, which lies at the crossroads between cross-border transfer of electronic information and consumer protection. An increasing number of RTAs, namely 44 agreements, have established specific provisions on personal information protection.³⁵ As shown in Figure 42, provisions related to personal data range from commitment to adopt measures to protect personal data to cooperation. Several RTAs provide an explicit definition of "personal information" or "personal data". Although the language of this definition differs in many of these RTAs, the two variations are "any information about an identified or identifiable individual or natural person" and "information about an individual, whose identity is apparent, or can reasonably be ascertained, from the information".

Similar to the provisions on consumer protection, several agreements, such as the RTAs between Canada and Colombia and between China and the Republic of Korea, recognize the importance of personal information in the online environment or in e-commerce. Formulated more specifically, the RTAs to which the EFTA states are a party with Central America, Colombia, and Peru state that the parties recognize, among others things, the need to create an environment of trust and confidence for users of e-commerce covering, *inter alia*, (i) protection of privacy of individuals in relation to the processing and dissemination of personal data, and (ii) protection of confidentiality of individual records and accounts.

³⁵ This figure does not include the provisions related to the protection of personal data found in the chapter on financial services of 21 RTAs. Similarly, it does not include the provisions included in the chapter on the protection of personal data of the RTA between the EU and Cameroon, which encompass the establishment of different content principles and enforcement mechanisms, the obligation of consistency with international commitments and cooperation, among other things.

Besides recognizing the importance of personal information protection, one of the most common types of provisions on personal information protection refers to the adoption of measures aimed at protecting personal data. The language of this type of provisions is particularly heterogeneous across RTAs. For instance, the RTA between China and the Republic of Korea recognizes the necessity of taking an adequate level of safeguards for the protection of e-commerce users' personal data that is transferred between the parties. Each party shall further endeavour to adopt or maintain legislative measures, which ensure the protection of e-commerce users' personal data. Similarly, the RTAs to which Canada is a party with Colombia and Peru specify that the parties should adopt or maintain laws, regulations or administrative measures for the protection of personal information of users engaged in e-commerce. In several other agreements, including the RTAs to which the Republic of Korea is a party with Australia, China and Colombia, this type of provisions is formulated in firmer terms by stipulating that the parties shall adopt or maintain measures, which ensure the protection of e-commerce users' personal data. In some agreements, such as the RTA between Australia and Chile, this type of provisions refers more broadly to the adoption of a domestic legal framework. In other agreements, such as in the Additional Protocol to the Framework Agreement of the Pacific Alliance, this provision covers more specifically the adoption of laws, regulations and administrative measures. In a few RTAs, such as the RTAs to which Thailand is a party with Australia and New Zealand, this provision is qualified by stating that each party shall take measures as it considers appropriate and necessary to protect e-commerce users' personal data. A relatively similar provision is found in the RTA between the ASEAN states, Australia and New Zealand, which further specifies that a party shall not be obliged to apply that provision before the date on which that party enacts domestic laws or regulation to protect e-commerce users' personal data. Although the RTA between Japan and Switzerland does not include a specific article on personal data protection in its e-commerce chapter, it incorporates an article on consumer and data protection in the annex referring to the telecommunications services chapter. The article in question stipulates that each party shall ensure that suppliers of telecommunications services in its area take appropriate measures to protect personal data, including individual records and accounts.³⁶

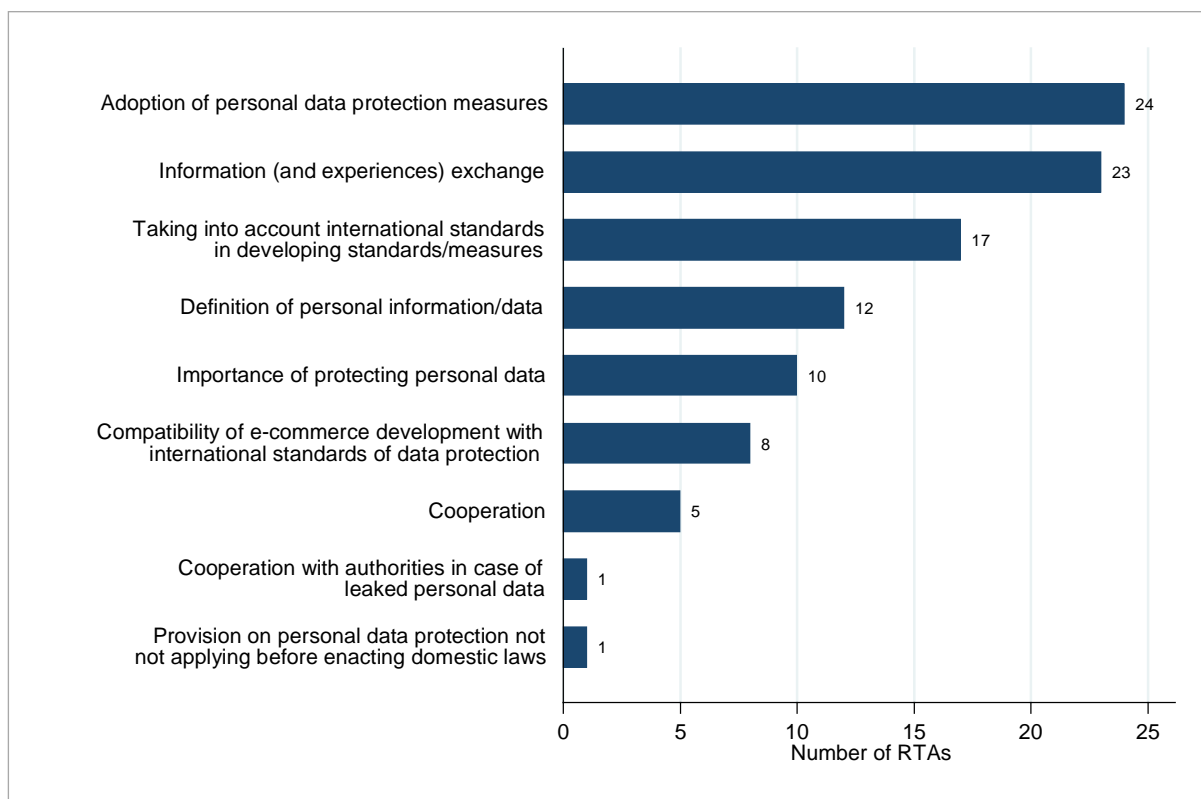
A different type of provisions related to the adoption of measures and found mainly in the RTAs to which the EU is a party refers to the compatibility or consistency of e-commerce development with international standards of data protections. For instance, the parties to the RTA between the EU and Central America recognise that e-commerce development shall be compatible with international standards of data protection, in order to ensure the confidence of users of e-commerce. Similarly, the RTA between the EU and Colombia and Peru states that the parties agree that e-commerce development shall be consistent with international standards of data protection. A slightly more specific provision, found in the other RTAs negotiated by the EU, such as the one with Ukraine, mentions that e-commerce development must be fully compatible with the highest international standards of data protection.

Another more specific type of provisions related to international standards, often complementing the commitment to adopt measures to protect personal data, refers to taking into account international standards or practices in developing standards of personal information protection or measures for the protection of personal information. Similar to other provisions, the language of this type of provisions differs between several RTAs. For instance, the RTA between Japan and Switzerland recognizes the importance of taking international standards and criteria into account in developing measures to protect the personal data of e-commerce users. Instead of referring to measures for personal data protection, the provision found in the RTA between the Republic of Korea and Viet Nam mentions the importance of taking into account the international standards and the criteria of relevant international organizations in the development of personal data protection standards in e-commerce. Other provisions of this type, included in several RTAs involving mainly Australia, are formulated in firmer terms by specifying that the parties shall

³⁶ Although not reviewed here, the RTAs to which Japan is a party with the Philippines, Singapore and Switzerland, include an article on general exceptions in the chapter on trade in services, which lists measures necessary to secure compliance with laws or regulations which are not inconsistent with the provisions of the services chapter, including those relating to the protection of the privacy of individuals in relation to the processing and dissemination of personal data and the protection of confidentiality of individual records and accounts. Similarly, several Japanese RTAs, such as those with Australia, Mongolia and Peru, include a provision in the article on access and use in their chapter on telecommunications services specifying that the parties may take measures necessary to protect the personal data of users of public telecommunications transport networks or services.

consider or take into account the international standards and criteria of relevant international organisations in the development of personal data protection standards. A similar commitment is included in the RTA between Australia and China but qualified with the expression "to the extent possible". The RTA between Australia and the Republic of Korea also extends this obligation to international standards, guidelines and recommendations of relevant international organisations.

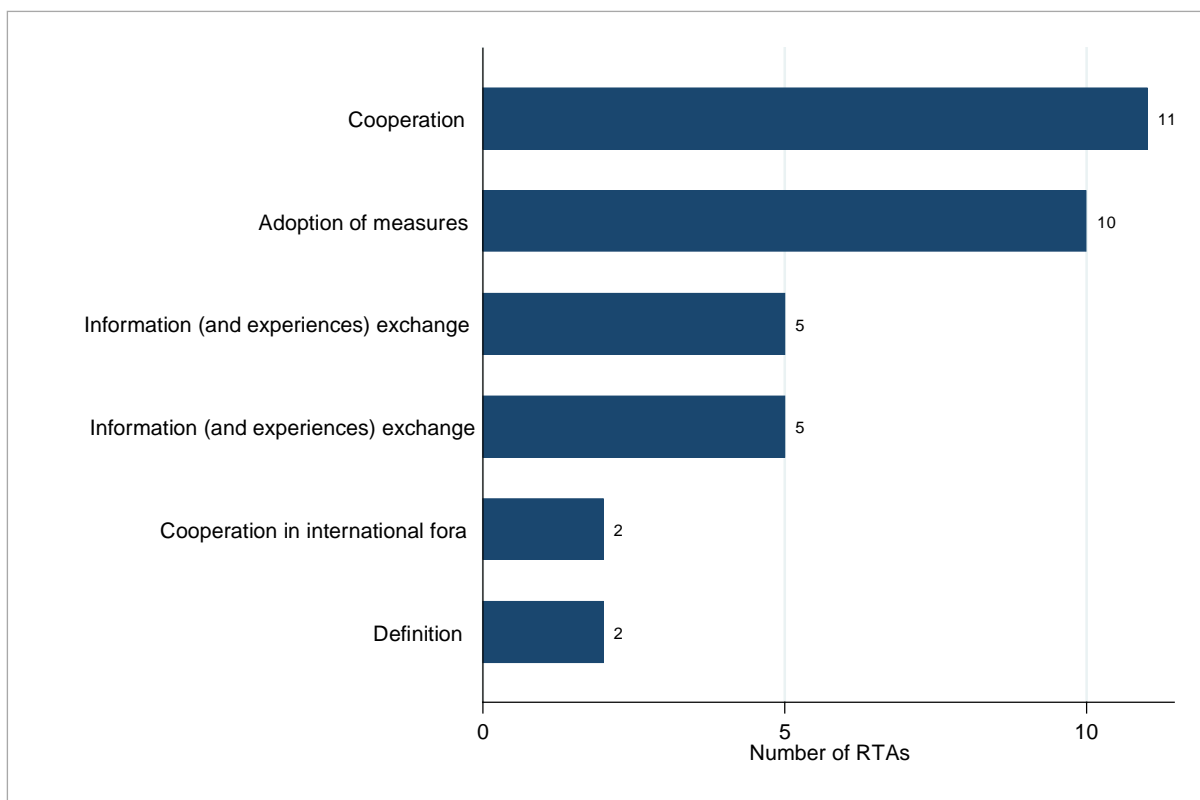
Figure 42: Types of provisions related to personal information protection



Source: Computations based on WTO RTA database.

The remaining types of provisions on personal information protection are mostly about cooperation. Many RTAs refer to the exchange of information and experiences. Some agreements, such as the RTAs between Mexico and Central America and between Singapore and Chinese Taipei, recognize or affirm the importance of sharing information and experiences on regulations, laws, and programs in the sphere of e-commerce, including those related to data privacy. Other versions of this provision are formulated more directly by inviting or requiring the parties to exchange information. For instance, a couple of agreements, such as the RTA between Canada and Colombia, specify that the parties should exchange information and experiences regarding their domestic regimes on the protection of personal information. In more recent agreements, such as the RTA between China and the Republic of Korea, the provision is worded in firmer terms by stipulating that the parties shall share information and experience on the protection of personal information in e-commerce. In a few RTAs, the cooperation provision on personal information protection does not mention the form(s) of cooperation. This is the case of the RTA between the Republic of Korea and Colombia, in which the parties shall endeavour to establish cooperation mechanisms on issues arising from e-commerce, which will, *inter alia*, address the protection of personal data. Another type of cooperation provision found only in the RTA between the Republic of Korea and Viet Nam stipulates that each party shall, to the extent possible, make cooperative efforts with competent authorities when personal data transferred across its borders are leaked.

Figure 44: Types of provisions related to unsolicited commercial electronic messages



Source: Computations based on WTO RTA database.

The RTA between Australia and Japan includes also an article referring more broadly to unsolicited electronic messages in the chapter on telecommunication services, and not only to commercial messages. Under the agreement, the parties shall, in accordance with their laws and regulations, take appropriate and necessary measures to regulate unsolicited electronic messages, with a view to encouraging favourable conditions for the use of electronic messages. Similarly, the RTA between Japan and Switzerland incorporates an article on consumer and data protection in the annex referring to the telecommunications services chapter, in which each party shall take appropriate and necessary measures to fight against unsolicited electronic messages, including electronic mails, sent for advertising purposes to a large number of recipients and without their consent.

The remaining types of provisions on unsolicited electronic commercial messages are about cooperation. As highlighted in Figure 45, most RTAs with provisions on unsolicited electronic commercial messages include a single provision on cooperation. The most common form of such provision stipulates that the parties shall maintain a dialogue on regulatory issues arising from e-commerce addressing, *inter alia*, the treatment of unsolicited electronic commercial communications. Other related provisions are more specific. For instance, the RTAs to which Japan is a party with Australia and Mongolia stipulate that the parties shall, as appropriate, share information and experiences, including on related laws, regulations and best practices with respect to e-commerce, in relation to, *inter alia*, combatting unsolicited commercial electronic messages. Besides bilateral cooperation, the RTAs negotiated by Australia with Malaysia and the Republic of Korea also mention cooperation on the regulation of unsolicited commercial electronic messages in international fora. Both agreements further explain that areas of cooperation may include, but are not limited to, the exchange of information on technical, educational and policy approaches to unsolicited commercial electronic messages and telemarketing.

Figure 45: Evolution of RTAs with provisions on unsolicited commercial electronic messages



Source: Computations based on WTO RTA database.

Paperless trading administration

Although there is no internationally agreed definition of electronic government (e-government), e-government typically encompasses the use of ICT to deliver services in the public administration. In that context, paperless trading refers to the process of making trade administration documents submitted by importers and exporters available and accepted electronically. As explained previously, the first provision referring to e-commerce was included in an article on paperless trading in the RTA between New Zealand and Singapore. Over the years, a large number of RTAs, namely 47 agreements, include specific provisions on paperless trading, and more generally electronic government, in the chapter on e-commerce.³⁷ Although not reviewed here, provisions on paperless trading and the use of automated systems can also be found in the chapter on customs procedures or trade facilitation of 39 RTAs.³⁸ In addition, an increasing number of RTAs, namely 25 agreements, include a chapter on government procurement with provisions related to electronic procurement such as the use of electronic means and electronic auctions.³⁹

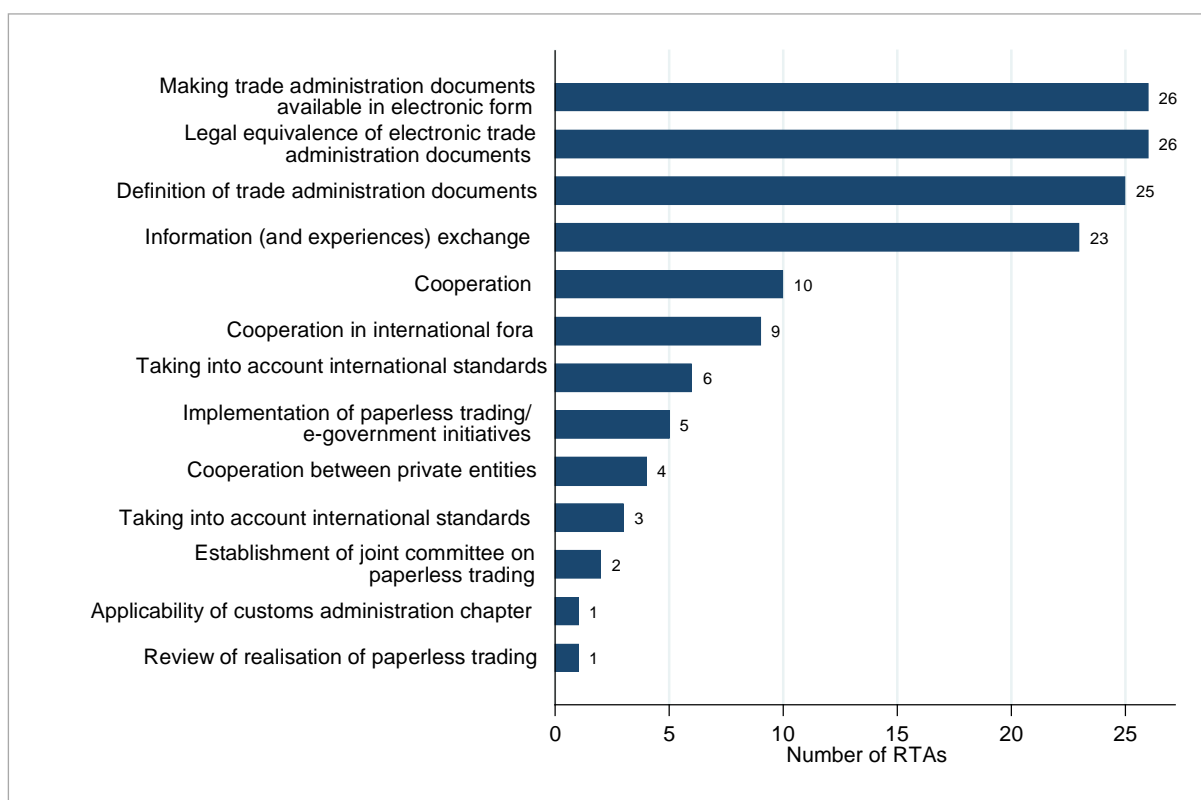
³⁷ There are 32 RTAs with specific provisions on paperless trading if the provisions referring to e-government are excluded.

³⁸ Very few agreements, such as the RTA between Australia and Singapore, include an article on paperless trading in the chapter on customs procedures. In most agreements, provisions related to paperless trading in the chapter on customs procedures are found in the article on the use of automated systems or on the application of information technology. Several RTAs negotiated by the EFTA States include also in their respective annex to the article on trade facilitation various provisions on simplifying international trade procedures.

³⁹ The RTAs to which Singapore is a party with Australia and Panama explicitly specify in their respective government procurement chapter that the parties shall, within the context of their commitment to promote e-commerce, seek to provide opportunities for government procurement to be undertaken through electronic means, referred to as e-procurement.

As shown in Figure 46, different types of provisions on paperless trading have been incorporated in these RTAs. Many of these provisions on paperless trading, whose scope applies to trade administration documents, are found in a specific article on paperless trading in the chapter on e-commerce. Most RTAs with such article provide also an explicit definition of trade administration documents, namely forms issued or controlled by the government of a party, which must be completed by or for an importer or exporter in relation to the import or export of goods.⁴⁰ The RTA between Japan and Switzerland is the only notified RTA to explicitly extend the definition of trade administration documents to forms that a party issues or controls that must be completed by a service supplier in connection with trade in services. As shown in Figure 47, the RTA negotiated by Japan with Switzerland, along with the agreements between the ASEAN states Australia and New Zealand, and between the Republic of Korea and Viet Nam incorporate the highest number of provisions related to paperless trading.

Figure 46: Types of provisions related to paperless trading



Source: Computations based on WTO RTA database.

One of the most common type of provisions on paperless trading commits the parties to endeavour to make trade administration documents available to the public in electronic form. This provision is even more specific in several RTAs by referring to all trade administration documents. In a couple of RTAs, this type of provisions is worded in slightly firmer terms. For instance, the RTA between New Zealand and Singapore specifies that the parties shall have in place by the date of entry into force of the RTA an electronic environment that supports electronic business applications between each customs administration and its trading community. Similarly, the RTA between Australia and Singapore stipulates that the parties shall make publicly available, which may include through a process prescribed by the relevant party, electronic versions of all existing publicly available versions of trade administration documents by 2005.

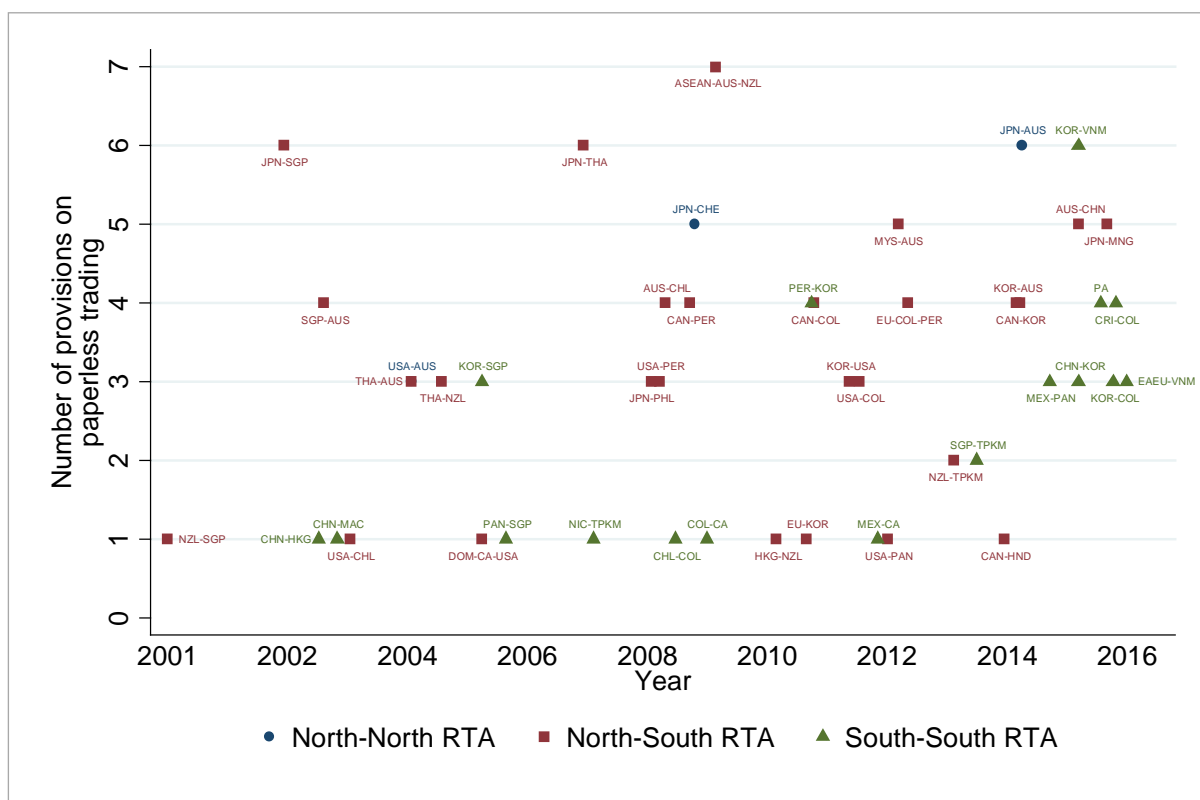
⁴⁰ A few RTAs also provide a definition of electronic version of a document, namely a document in electronic format prescribed by a party, including a document sent by facsimile transmission.

The provision referring to making available electronic trade administration documents is often complemented by another common type of provisions, which calls on the parties to endeavour to accept trade administration documents submitted electronically as the legal equivalent of the paper version of these documents. This type of provisions is formulated in relatively stronger terms in a couple of agreements. For instance, the RTA between Australia and China stipulates that each party shall accept the electronic versions of trade administration documents as the legal equivalent of paper documents except where (i) there is a domestic or international legal requirement to the contrary; or (ii) doing so would reduce the effectiveness of the trade administration process.

Another provision, found in a limited number of RTAs, requires the parties to work towards the implementation of initiatives, which provide for the use of paperless trading. The provision in the RTA between Australia and Chile is even more specific by referring to the development of a single window. The agreement further confirms that the provision on paperless trading in the chapter on customs administration applies to paperless trading under the chapter on e-commerce. Another related provision, included in a slightly larger number of RTAs, stipulates that in developing paperless trading, each party shall either endeavour to take into account or take into account international standards or methods made under the auspices of international organisations. The RTAs to which New Zealand is a party with the ASEAN states and Australia, and Chinese Taipei mention the World Customs Organization as one of these international organisations.

Several other types of provisions on paperless trading are related to cooperation. For instance, many RTAs incorporate a provision recognizing or affirming the importance of sharing information and experiences on regulations, laws, and programs in the sphere of e-commerce, including those related to e-government. A related provision, formulated in firmer terms and included in a couple of agreements, such as the RTAs negotiated by Japan with Australia and Mongolia, stipulates that the parties shall, as appropriate, share information and experiences, including on related laws, regulations and best practices with respect to e-commerce in relation to, *inter alia*, e-government.

Figure 47: Evolution of RTAs with provisions on paperless trading



Source: Computations based on WTO RTA database.

Another type of cooperation provisions, which is only targeted at paperless trading and found in a few RTAs, requires the parties to cooperate bilaterally and in international fora to enhance the acceptance of electronic versions of trade administration documents. Other cooperation provisions identify paperless trading or e-government as an area for cooperative activities, including a regulatory dialogue, among others. For instance, the RTAs to which China is a party with Hong Kong (China) and Macao (China) specify that the parties agree to strengthen cooperation in the development of e-government at various levels. Another provision found only in the chapter on paperless trading of the RTA between Japan and Singapore commits the parties to encourage cooperation between their relevant private entities engaging in activities related to paperless trading. The agreement further requires the parties to review how to realise paperless trading, in which electronic trade-related information and electronic versions of relevant documents exchanged between the parties' enterprises through private entities or facilities may be used as supporting documents by the trade regulatory bodies of the respective parties. The RTA also establishes a joint committee on paperless trading tasked, among other things, to review and discuss issues concerning the effective implementation of the chapter on paperless trading.

Access to and use of Internet

The RTA between the United States and the Republic of Korea is the only notified agreement to deal with the issue of access to, and use of, the Internet in its chapter on e-commerce. In particular, the parties recognise that their consumers should be able to access and use the digital products and services they choose, unless prohibited by the parties' respective law. The parties further recognise that their consumers should be able to run applications and services of their choice, subject to the needs of law enforcement, as well as be able to connect their choice of devices to the Internet, provided that such devices do not harm the network and are not prohibited by the parties' respective law. In addition, the parties recognize that their consumers should be able to have the benefit of competition among network providers, application and service providers, and content providers.

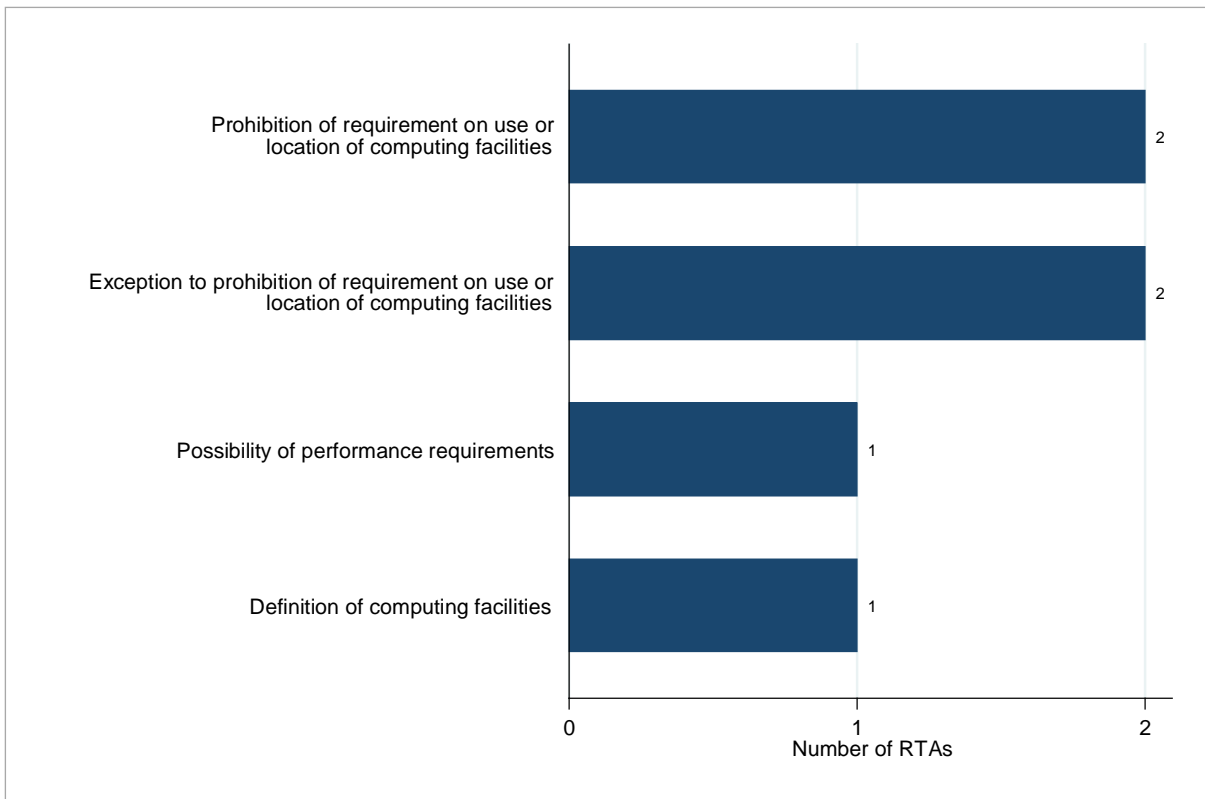
In an exchange of side letters, the parties recognize that these provisions on the principles on access to and use of the Internet support the parties' shared goal of maintaining an open and competitive environment for e-commerce-related activities. They also recognize that lawful contractual arrangements between network providers, application and service providers, content providers, and Internet users may be consistent with these principles, provided that the party's relevant authorities do not determine that the arrangements are exclusionary. They further recognize that the outcome of the debate in both parties concerning reasonable and appropriate cost distribution between network providers, application and service providers, content providers, and Internet users may affect both access to and use of the Internet and the incentives for network investment.

Use and location of computing facilities

Closely related to the issue of free flows of information across borders is that of disciplining data localisation requirements. The RTA between Japan and Mongolia and the Additional Protocol to the Pacific Alliance Framework Agreement are the only notified RTAs to incorporate specific provisions on the use and location of computing facilities. The Additional Protocol defines computer facilities as computer servers and devices for the processing or storage of information for commercial purposes, excluding facilities used to provide public telecommunications services.

As shown in Figure 48, two main types of provisions on the use and location of computing facilities are found in both RTAs. In particular, each party may or shall not require the other party's service suppliers, investors and investments to use or locate computer facilities in the party's territory as a condition for the exercise of its business activity in its area. However, both RTAs specify that the parties shall not be prevented from adopting or maintaining measures affecting the use or location of computing facilities in order to achieve a legitimate public policy objective, provided that such measures are not applied in a manner, which would constitute a means of arbitrary or unjustifiable discrimination or a disguised restriction on trade. The Additional Protocol further explains in a footnote that the provision prohibiting requirement concerning the location of computing facilities shall not prevent a party from conditioning the receipt of an advantage or continuing to receive an advantage in accordance with the provision on performance requirements found in the agreement's investment chapter.

Figure 48: Types of provisions related to use and location of computing facilities



Source: Computations based on WTO RTA database.

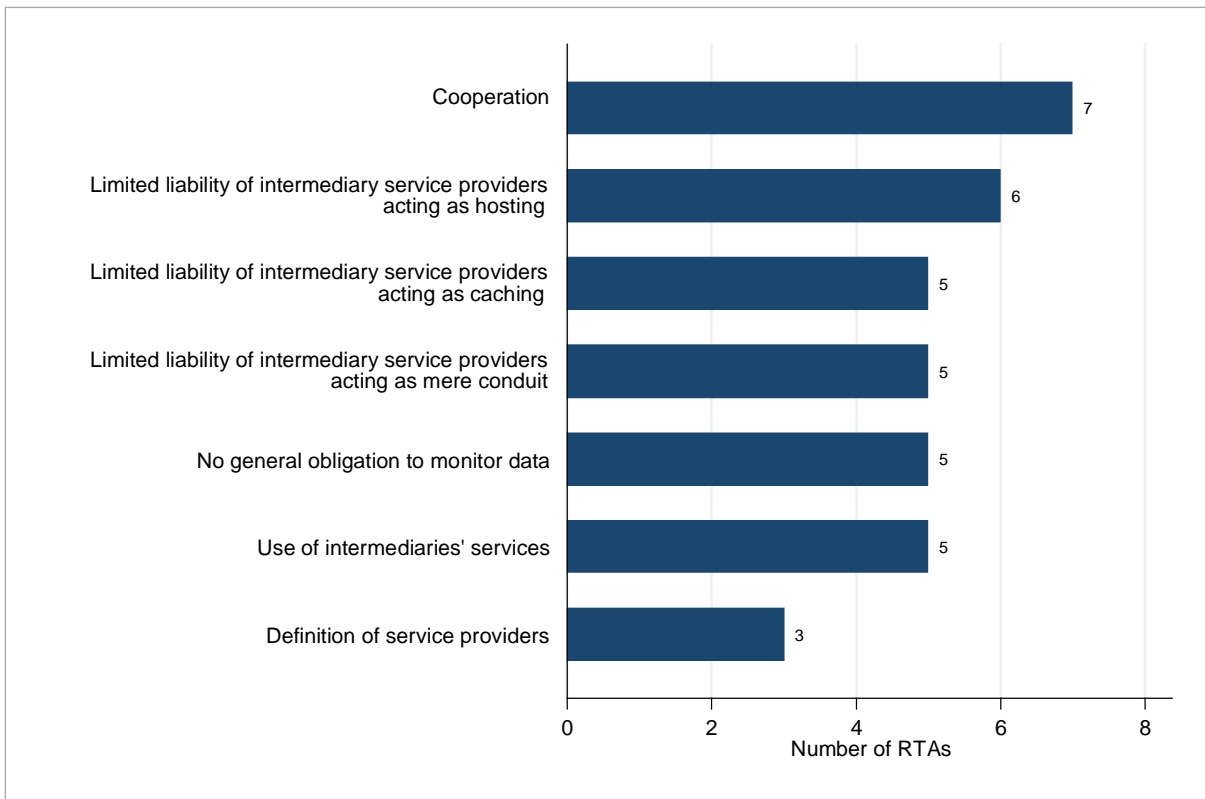
Software source code

The RTA between Japan and Mongolia is the only notified agreement to incorporate specific provisions on source code. In particular, the agreement contains a commitment by the parties not to require the transfer of, or access to, source code of software owned by a person of the other party, as a condition of the import, distribution, sale or use of such software, or of products containing such software, in their respective area. This commitment is, however, limited to mass-market software or products containing such software, and explicitly exclude software used for critical infrastructure.

Liability of intermediary service providers

Liability of intermediary service providers is another relatively recent issue that is covered in a limited number of RTAs, namely eight agreements. As highlighted in Figure 49, different types of provisions related to intermediary service providers' liability are found in RTAs ranging from specific commitments regarding providers acting as mere conduit, caching or hosting services to cooperation. While most of these provisions are found in the e-commerce chapter, relatively similar provisions are also found in the chapter on intellectual property of a few agreements, such as the RTAs negotiated by the EU with the Republic of Korea, Colombia and Peru, and Ukraine.

Figure 49: Types of provisions related to liability of intermediary service providers

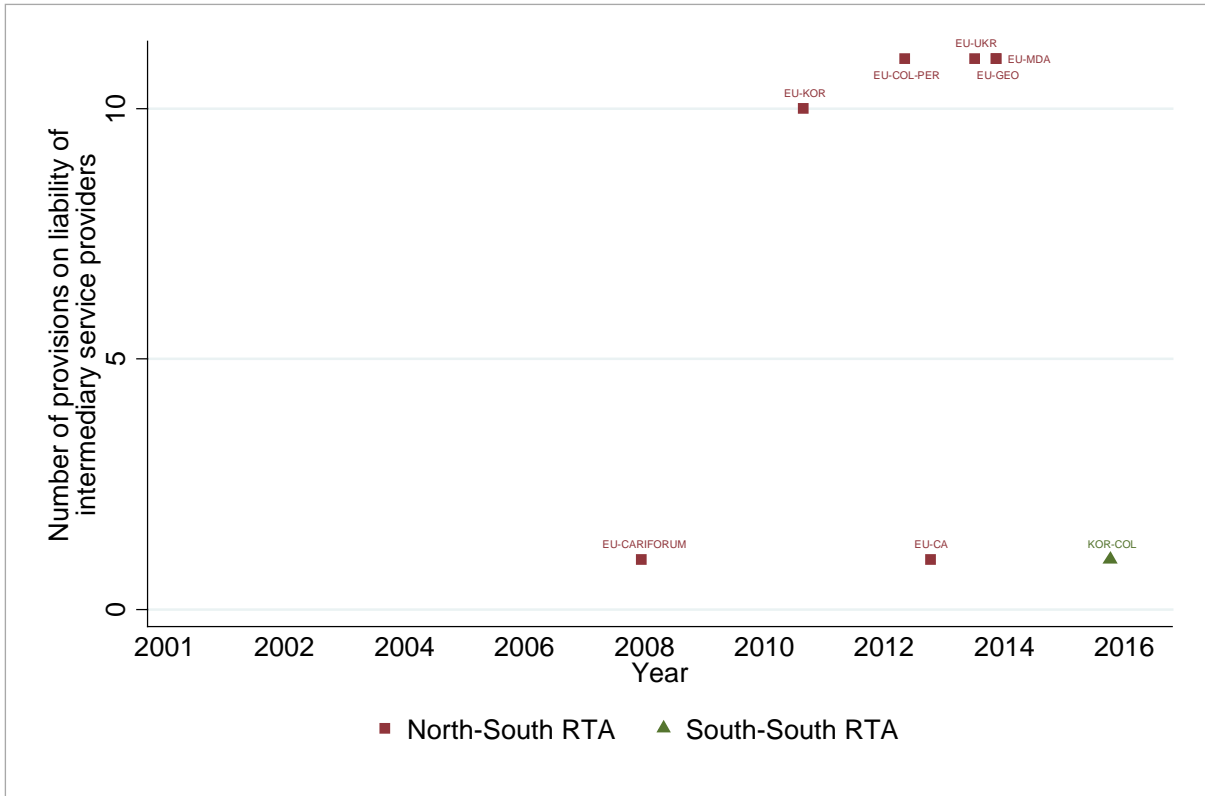


Source: Computations based on WTO RTA database.

The most common type of provisions related to intermediary service providers' liability takes the form of cooperation provisions. Seven RTAs, including the RTAs negotiated by the Republic of Korea with the EU and Colombia, identify the liability of intermediary service providers with respect to the transmission, or storage of information as one of the issues arising from e-commerce that is the object of cooperation and dialogue.

The remaining type of provisions on intermediary service providers' liability are included in a few agreements, namely the RTAs to which the EU is a party with Colombia and Peru, Georgia, the Republic of Moldova and Ukraine. As shown in Figure 50, the agreements negotiated by the EU with Georgia and the Republic of Moldova incorporate the highest number of provisions on intermediary service providers' liability. Under both agreements, service providers are defined as providers of transmission, routing, or connections for digital online communication between or among points specified by the user, of material of the user's choosing without modification of its content. Both RTAs include detailed provisions on the use of intermediaries' services, as well as on the liability of intermediary services providers offering mere conduit, caching and hosting information and data. Both agreements specify that the parties shall ensure that the intermediary service providers are not held liable for third party illegal content provided they meet conditions specific on whether they provide mere conduit, hosting and caching. A related provision can also be found in the intellectual property chapter of the RTA between the EU and Central America, specifying that the parties agree to maintain the type of limitations of responsibility of service providers they currently foresee in their respective legislation within three years from the entry into force of the RTA.

Figure 50: Evolution of RTAs with provisions on intermediary service providers' liability



Source: Computations based on WTO RTA database.

Both RTAs to which the EU is a party with Georgia and the Republic of Moldova further stipulate that these provisions limiting the liability of intermediary services providers shall not affect the possibility of a court or administrative authority, in accordance with the parties' legal systems, of requiring the service provider to terminate or prevent an infringement. In addition, both RTAs specify that the parties shall not impose a general obligation on providers to monitor the information, which they transmit or store when offering mere conduit, hosting and caching. The parties also commit to not impose a general obligation to actively seek facts or circumstances indicating illegal activity. The parties may, however, establish obligations for information society service providers to promptly inform, upon request, the competent public authorities of alleged illegal activities or information.

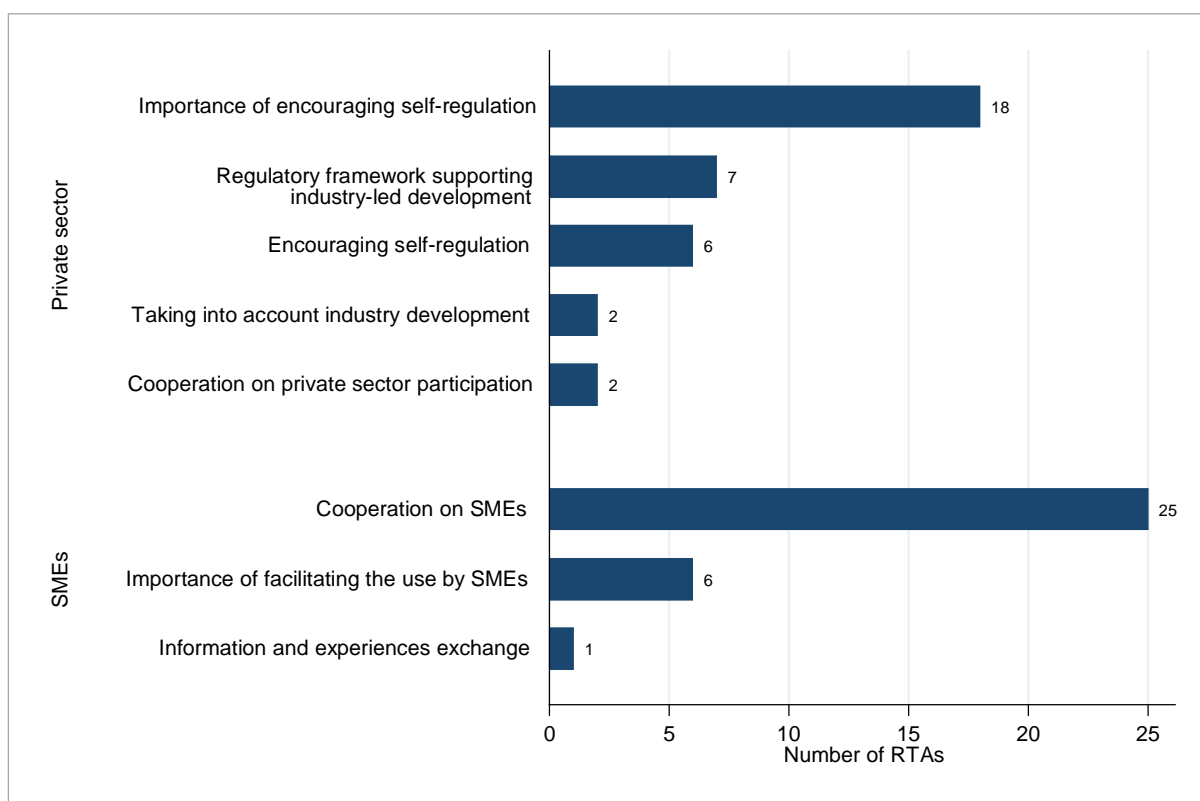
Private sector participation

An increasing number of RTAs with e-commerce provisions, namely 37 agreements, incorporate specific provisions related to the participation of the private sector in e-commerce.⁴¹ As shown in Figure 51, these types of provisions refer to either the private sector in general or micro-, small- and medium-sized enterprises (MSMEs). While most provisions on SMEs are found in an article on cooperation, many provisions referring to private sector are located in an article on domestic regulatory framework. The RTA between Japan and Switzerland is the only notified agreement to include a specific article on private sector participation.

⁴¹ This figure does not include the provisions related to cooperation on paperless trading between private entities found in four RTAs. See section 5.16 on paperless trading administration for further details.

One of the most common types of provisions referring to private sector affirms the importance of encouraging, fostering, or promoting e-commerce by encouraging the private sector to adopt codes of conduct, model contracts, guidelines, and enforcement mechanisms. A related provision recognizes the importance of encouraging self-regulation by the private sector to promote trust and confidence in e-commerce, having regard to the interests of users, through initiatives such as industry guidelines, model contracts and codes of conduct. A few RTAs with such provisions refer also to the adoption of trust seals by the private sector.

Figure 51: Types of provisions related to private sector participation



Source: Computations based on WTO RTA database.

Some RTAs incorporate a different provision that goes beyond recognizing the importance of encouraging self-regulation. For instance, the RTA between Peru and the Republic of Korea specifies that the parties commit to foster e-commerce by encouraging the private sector to adopt codes of conduct, model contracts, guidelines, and enforcement mechanisms. Similarly, the RTA between Hong Kong (China) and New Zealand mentions the parties' agreement to work to build consumer and business confidence to support the fullest economic and social benefits from e-commerce by promoting self-regulatory codes based on international norms and standards. A related provision, couched in firmer language and found in the RTAs to which Japan is a party with Australia and Switzerland, stipulates that each party shall encourage the private sector to adopt self-regulation, including codes of conduct, model contracts, guidelines and enforcement mechanisms, with a view to facilitating e-commerce.

The remaining types of provisions referring to private sector focus on cooperation and are found in a couple of RTAs. For instance, the RTA between the EU, Colombia and Peru specifies that the trade committee established under the agreement may, to the extent necessary and justified, establish a working group with the aim of performing various tasks, including encouraging the participation of the private sector in training and adoption of codes of conduct, contract models, guidelines and compliance mechanisms for e-commerce, together with active participation in fora organised between the parties. Similarly, the RTA negotiated by the ASEAN states, Australia and New Zealand mentions possible cooperative research and training activities, including encouraging development by the private sector of methods of self-regulation, including codes of conduct, model contracts, guidelines, and enforcement mechanisms.

Figure 52: Evolution of RTAs with provisions on private sector and SMEs participation



Source: Computations based on WTO RTA database.

As explained above, most provisions on SMEs are about cooperation and focus on either promoting the use of e-commerce by SMEs or on overcoming obstacles faced by SMEs engaged in e-commerce. One of these provisions, found in a few RTAs, states that the parties recognize the importance of facilitating the use of e-commerce of MSMEs. The remaining provisions on SMEs are relatively more specific by mentioning the desire to cooperate and work together. In fact, the most common cooperation provision on SMEs affirms the importance of working together to promote or facilitate the use of e-commerce by (M)SMEs. A related provision, found in a couple of RTAs, specifies that the parties recognize or affirm the importance of working together to overcome obstacles encountered by SMEs in using e-commerce. In a couple of RTAs, the cooperation provisions on SMEs are couched in firmer terms. For instance, the RTA between Japan and Singapore stipulates that the parties shall cooperate to identify and overcome obstacles encountered in particular by SMEs in using e-commerce in the context of their bilateral trade. A relatively similar provision is found in the RTAs between Australia and Japan and between Colombia and the Republic of Korea. The RTA between Canada and Panama is the only notified agreement to explicitly mention that the parties recognize the importance of sharing information and experiences on laws, regulations and programmes in order to facilitate the use of e-commerce by MSMEs.

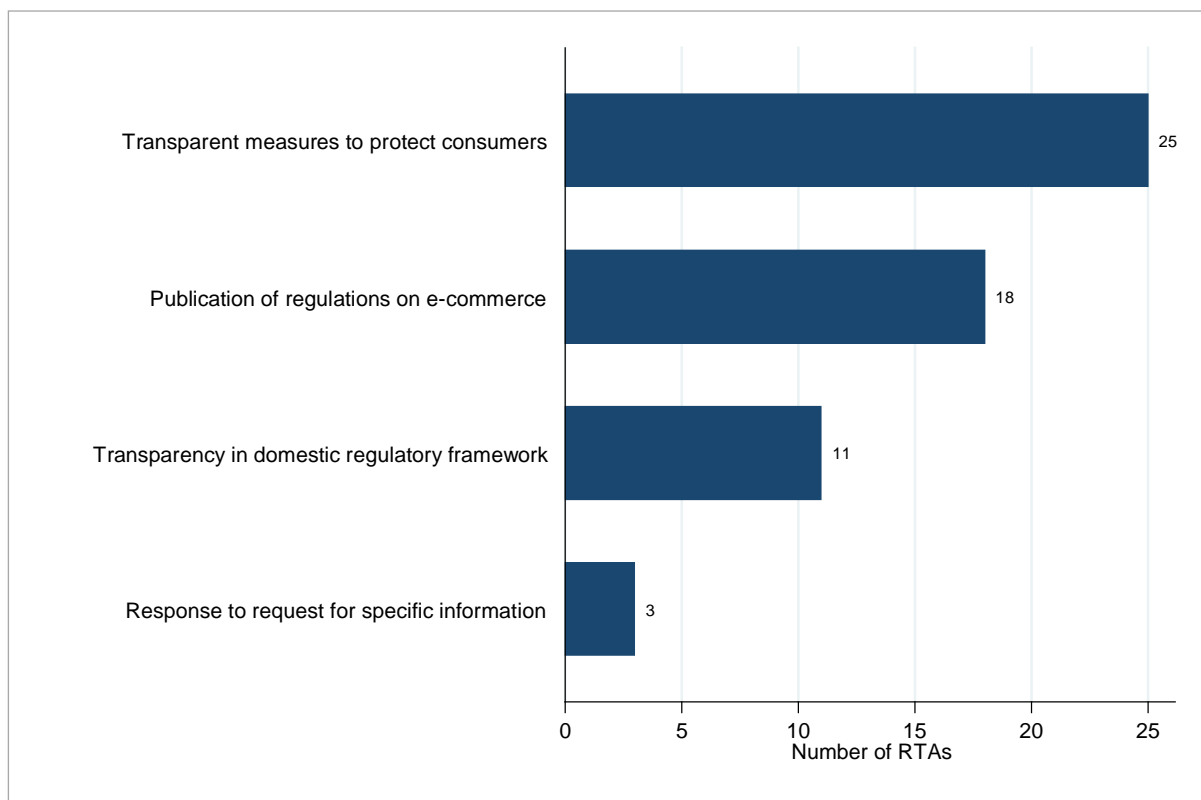
Transparency

A limited but increasing number of RTAs, namely 37 agreements, include provisions related to transparency in the context of e-commerce. In many of these RTAs, these provisions complement other provisions found in a specific chapter on transparency, which apply to the entirety of the RTA, including the chapter on e-commerce.⁴² As shown in Figure 53, there are a limited number of different types of provisions on transparency.

⁴² For instance, out of the 18 RTAs with commitments to publish regulations on e-commerce set out in the e-commerce chapter, 12 agreements also include a specific chapter on transparency.

As explained above, many RTAs with e-commerce provisions incorporate specific provisions on the protection of consumers engaged in e-commerce. In this context, one of these provisions recognizes the importance of maintaining and adopting transparent and effective measures to protect consumers from fraudulent and deceptive commercial practices in e-commerce. An even more specific provision, found in the RTA between Australia and Chile, stipulates that each party shall adopt or maintain measures regulating consumer protection where consumers participating in e-commerce should be afforded transparent and effective consumer protection.

Figure 53: Types of provisions related to transparency



Source: Computations based on WTO RTA database.

The remaining types of provisions on transparency refer to regulations and measures on e-commerce in general. For instance, several RTAs recognize the importance of clarity, transparency and predictability in the parties' domestic regulatory frameworks in facilitating, to the maximum extent possible, the development of e-commerce. A more specific provision, found in a couple of RTAs, stipulates that the parties agree to ensure that their regulations and the development of their regulations affecting e-commerce are transparent. Another provision, couched in relatively firmer language, specifies that each party shall endeavour to ensure that all its measures affecting e-commerce are administered, among others, in a transparent manner.

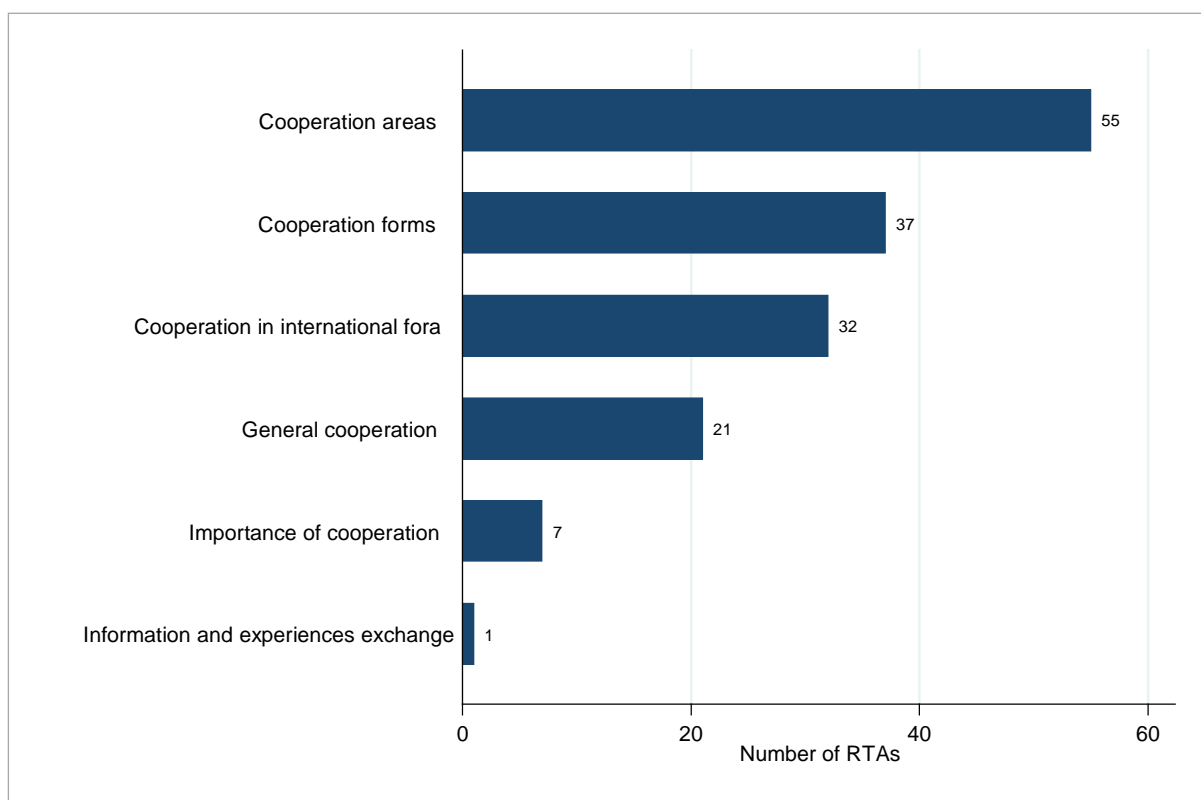
Another type of provisions on transparency that is the object of a dedicated article in the e-commerce chapter of many RTAs requires the parties to publish or otherwise make publicly available their respective laws, regulations, and other measures of general application that pertain to e-commerce. In a few RTAs, this transparency commitment applies also to procedures and administrative decisions relating to e-commerce. In addition, in a few other RTAs, the provision refers to relevant measures of general application pertaining to or affecting the operation of the chapter on e-commerce, instead of referring to e-commerce in general. This transparency obligation is complemented in the RTAs to which Australia is a party with the ASEAN states and New Zealand, China and Singapore by another provision requiring each party to respond promptly to request by the other party for specific information on any of its measures of general application pertaining to, or affecting the operation of the e-commerce chapter.

Cooperation and technical assistance

As highlighted throughout this study, many types of e-commerce provisions consist in cooperation provisions. It is therefore not surprising that most RTAs with e-commerce provisions, namely 63 agreements, include at least one provision on e-commerce cooperation.⁴³ While most of these cooperation provisions are found in a specific article on cooperation in the e-commerce chapter, some provisions are sometimes located in the cooperation chapter either in a non-specific article or an article dedicated to e-commerce.⁴⁴

It is also important to note that in some cases the negotiation of e-commerce provisions in RTAs, takes place in a broader framework in which the parties have previously negotiated cooperation agreements on e-commerce or information and telecommunication technologies. For instance, the United States and Jordan issued a joint statement on e-commerce prior to negotiating and concluding a RTA. Similarly, before concluding their RTA, Japan and Australia negotiated a framework for cooperation in the information economy and ICT industries with several issues related to e-commerce, such as digital certificates and consumer protection.

Figure 54: Types of provisions related to cooperation



Note: Total number of RTAs with at least one e-commerce provision belonging to the respective category.
Source: Computations based on WTO RTA database.

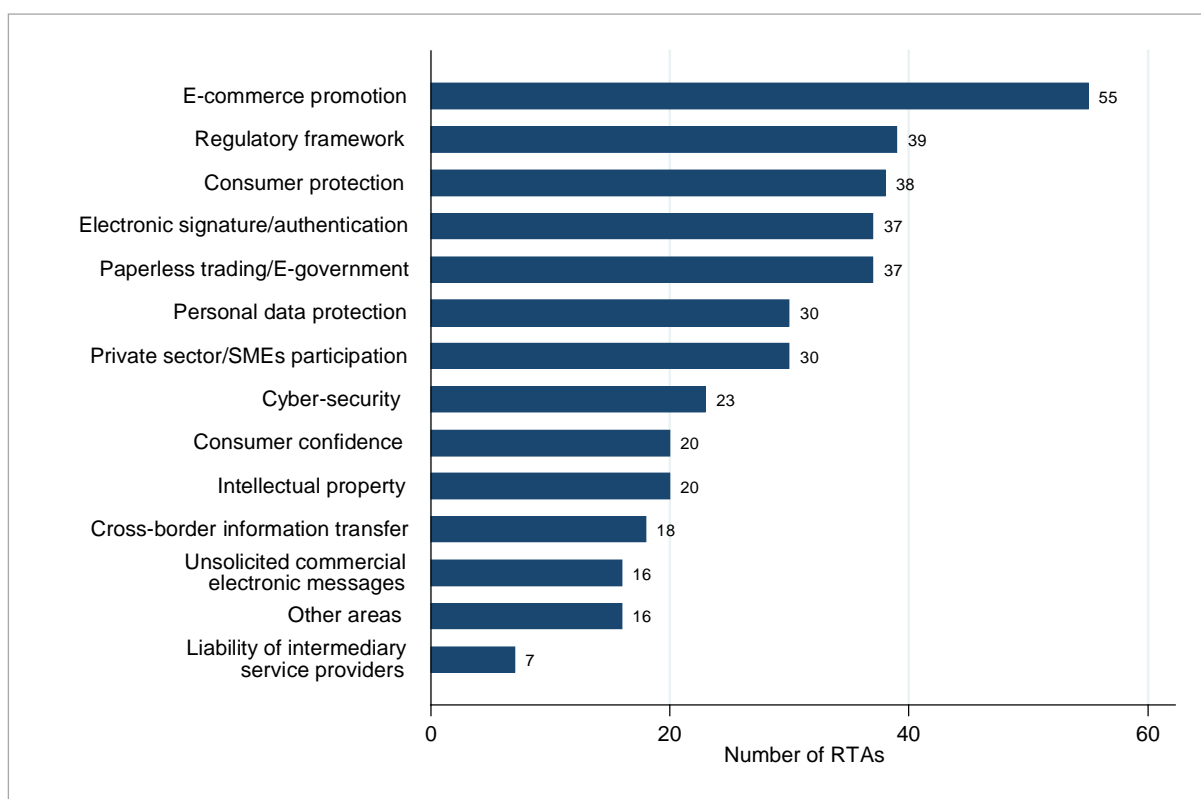
⁴³ This figure includes e-commerce provision referring to cooperation and exchange of information and/or experiences. However it does not include the few RTAs without specific cooperation provisions on e-commerce but that include cooperation provisions on information society or ICT, such as the RTAs negotiated by the EU with Jordan and Tunisia.

⁴⁴ The RTA between the GCC states and Singapore is one of the few notified RTAs that include an article on e-commerce in the chapter on cooperation.

Cooperation provisions are by far the most heterogeneous type of e-commerce provisions. Part of this high heterogeneity stems from the scope of these cooperation provisions. As highlighted in Figure 54, some provisions identify e-commerce as an area of cooperation without providing any additional details or defining any actions. A few other provisions highlight the importance of cooperating on e-commerce. The remaining types of cooperation provisions are more specific and mention explicitly the topic and/or form of cooperation activities related to e-commerce, including in some cases cooperating in international fora at both a regional and multilateral level. Overall, the language of the cooperation provisions on e-commerce tends to be worded in best-endeavour terms.

As shown in Figure 55, a broad range of issues, often interrelated, are explicitly addressed in an increasing number of e-commerce provisions. In most cases, the issues identified are part of a non-exhaustive list of potential areas of cooperation. Promoting and enhancing the development of e-commerce, including by improving its effectiveness and efficiency, is one of the most covered issues in cooperation. Other issues addressed in cooperative activities include the domestic legal and policy frameworks in the sphere of e-commerce, including those related to personal data protection, consumer protection, security in electronic communications, electronic authentication, unsolicited electronic mail, cross-border information flows, intellectual property rights, liability of intermediary service providers and paperless trading and electronic government. Other cooperation areas mentioned in a limited number of RTAs include market access of e-commerce, facilitation of prompt investigation and resolution of fraudulent incidents, and protection of public morals, in particular ethics for young generations. Several RTAs complete also their list of (potential) cooperation themes by referring to any other issue relevant for the development of e-commerce.

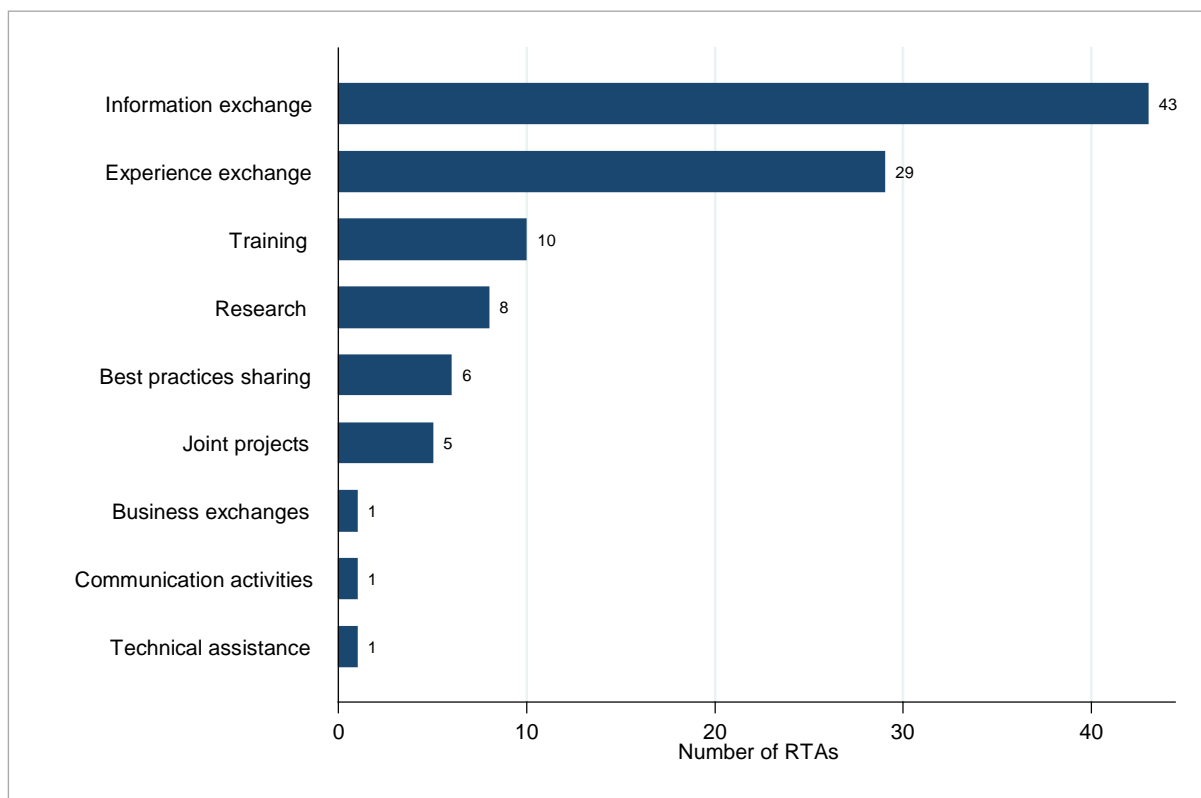
Figure 55: Areas of e-commerce cooperation



Note: Total number of RTAs with at least one e-commerce provision belonging to the respective category.
Source: Computations based on WTO RTA database.

Most RTAs listing specific cooperation areas related to e-commerce also mention at least one form of cooperation activities. As noted in Figure 56, the most common cooperation forms consist of exchanging relevant information and sharing experiences on regulations, policies and programmes regarding specific issues related to e-commerce. Other types of cooperation include training, research, best practices sharing, joint projects as well as visits and professionals exchange. A limited number of RTAs, such as the agreements negotiated by Colombia with Canada and Costa Rica, specify the means through the parties could work together, such as ICT, and face to face meetings.

Figure 56: Forms of e-commerce cooperation



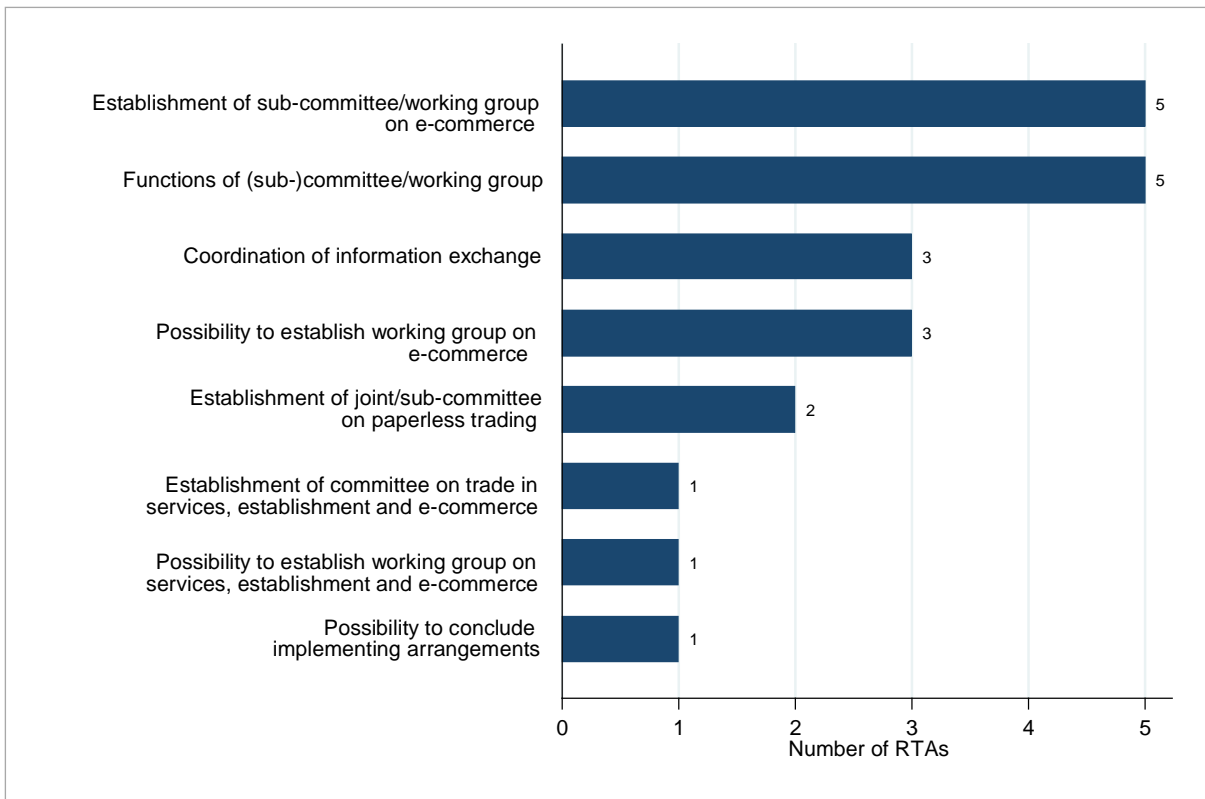
Note: Total number of RTAs with at least one e-commerce provision belonging to the respective category.
 Source: Computations based on WTO RTA database.

Institutional arrangements

Only a limited number of RTAs, namely 16 agreements, establish specific institutional arrangements related to e-commerce. The nature of these arrangements differs across agreements. The most detailed provisions on institutional arrangements are found in the RTA between Japan and Mongolia, which establishes a sub-committee on e-commerce composed of representatives of the parties' government. The sub-committee is in charge of, among other things, reviewing and monitoring the implementation and operation of the chapter on e-commerce and seeking new opportunities to further enhance trade in digital products. A committee is also established under the RTA between the EU and the Republic of Korea to supervise and assess the implementation of the chapter on trade in services, establishment and e-commerce. As explained above, the RTA between Japan and Singapore establishes also a dedicated joint committee on paperless trading.⁴⁵

⁴⁵ The implementing agreement between Japan and Singapore further specifies the composition and organisation of the joint committee on paperless trading.

Figure 57: Types of provisions on institutional arrangements



Source: Computations based on WTO RTA database.

Other institutional arrangements include the establishment of a working group under the RTAs signed by China with Hong Kong (China) and Macao (China) to act as a communication channel as well as a consultation and coordination mechanism for cooperation in e-commerce, with a view to promoting cooperation and joint development in the area of e-commerce. The RTA between the EU, Colombia and Peru also foresees the possibility to establish a working group in charge of various tasks, including discussing regulatory issues concerning trade in services, establishment and e-commerce. Similarly, both RTAs negotiated by Colombia with Canada and Costa Rica explain that in order to achieve the objectives of the e-commerce chapter, the parties may work together through various means, including a working group of experts. Another approach set out in the RTA between the United States and Singapore establishes a joint committee in charge of reviewing and considering specific matters related to the operation and implementation of the RTA in the light of its objectives, such as those related to e-commerce. A different arrangement established in the RTAs to which the EFTA states are a party with Central America, Colombia and Peru consists in identifying the respective authorities responsible for the coordination of the effective exchange of information. More recently, the RTA between the EAEU and Viet Nam includes in the e-commerce chapter a provision specifying that the competent authorities of the parties may conclude implementing arrangements on any matter within the scope of the e-commerce chapter and take all necessary actions to apply them within a jointly determined reasonable period of time.

The new types of provisions related to unsolicited commercial electronic messages include the firm commitment to adopt or maintain measures regarding unsolicited commercial electronic messages that require suppliers of these messages to facilitate the ability of recipients to prevent their ongoing reception of these messages. The measures regarding unsolicited commercial electronic messages that the parties shall adopt have also to require the consent of recipients to receive commercial electronic messages or otherwise provide for the minimisation of unsolicited commercial electronic messages. A related provision establishes the commitment to provide recourse against suppliers of unsolicited commercial electronic messages that do not comply with the measures regulating unsolicited commercial electronic messages.

An entirely new type of provisions concerns Internet interconnection charge sharing, in which the parties recognise that a supplier seeking international Internet connection should be able to negotiate with another party's suppliers on a commercial basis issues, such as compensation for the establishment, operation and maintenance of facilities of the respective suppliers. Cooperation on cybersecurity matters is another issue that is the object of a dedicated article recognizing the importance of building the capabilities of the parties' national entities responsible for computer security incident response and of using existing collaboration mechanisms to cooperate to identify and mitigate malicious electronic intrusions or dissemination of malicious code.

Other new provisions include, among other things, the confirmation that the article on software's source code shall not preclude the inclusion or implementation of terms and conditions related to the provision of source code in commercially negotiated contracts. The article further explains that a party shall not be prevented from requiring the modification of source code of software necessary for that software to comply with laws or regulations which are not inconsistent with the trade agreement. Finally, the article shall also not be construed to affect requirements that relate to patent applications or granted patents, including any orders made by a judicial authority in relation to patent disputes, subject to safeguards against unauthorised disclosure under a party's law or practice.

CONCLUSION

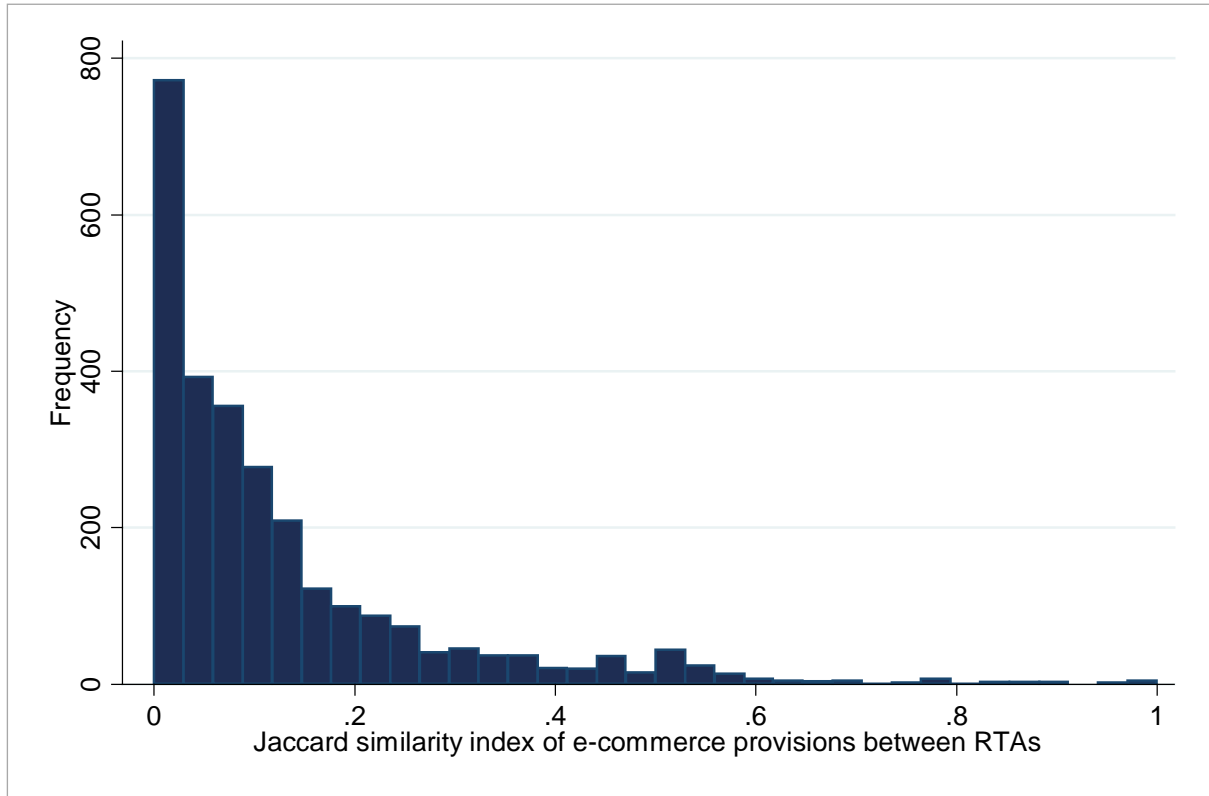
E-commerce provisions have been incorporated into an increasing number of RTAs. As of May 2017, 75 RTAs, encompassing more than a quarter of all RTAs notified to the WTO, incorporate at least one provision that explicitly mentions e-commerce. In parallel, the number of detailed e-commerce provisions included in a given RTA has tended to increase in recent years. Most e-commerce provisions do not follow a specific and unique template, even in some agreements negotiated by the same country. As a result, e-commerce provisions are particularly heterogeneous in terms of structure, language and scope. The most common types of e-commerce provisions refer to e-commerce promotion, cooperation and the moratorium on customs duties. Other e-commerce provisions concern the domestic legal framework as well as specific issues, such as electronic authentication, consumer protection, personal information protection and paperless trading. Given the dynamic nature of RTAs, e-commerce provisions are likely to keep evolving with new and more comprehensive types of provisions. Finally, one question for future research on RTAs is whether this heterogeneity can be explained by factors such as per capita income, size or rate of growth of e-commerce market in the RTA, state of ICT infrastructure both hard and soft, sophistication of financial systems, geography, degree of trade policy openness, or even political systems.

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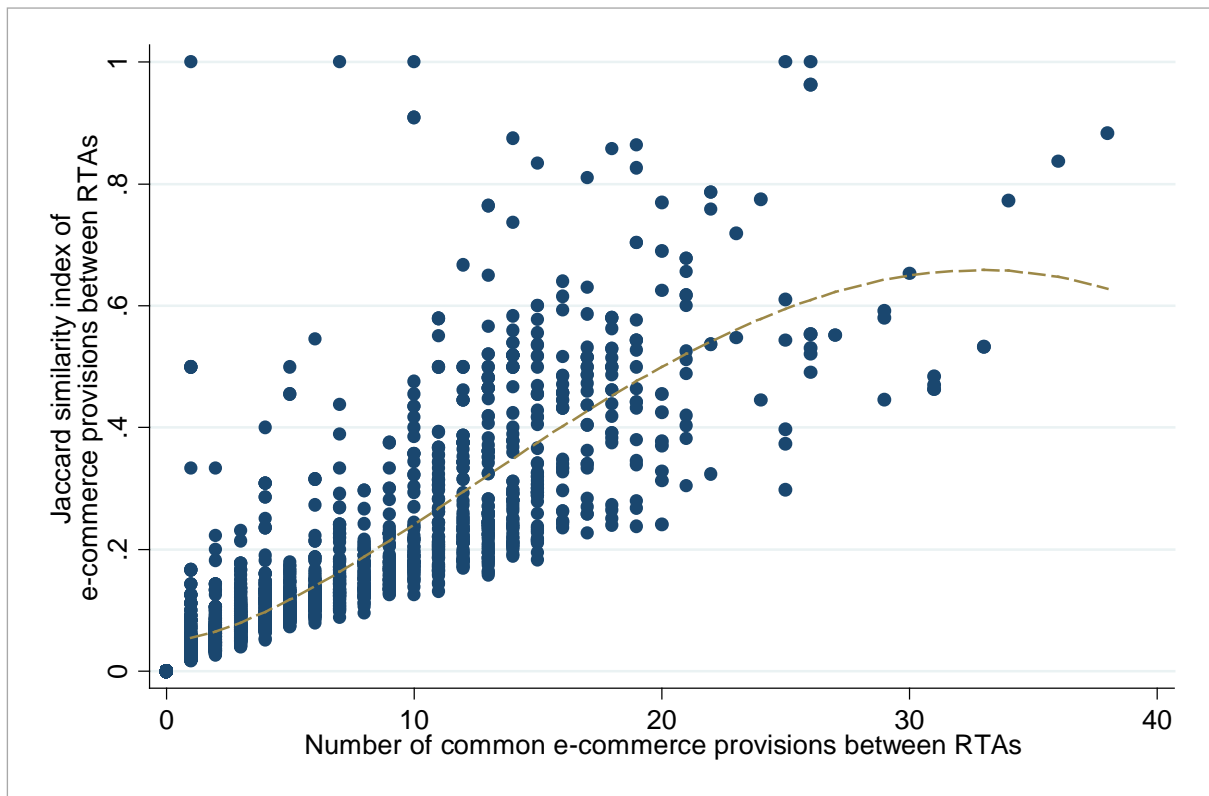
ANNEXES

Annex 1: Histogram of the Jaccard similarity index of e-commerce provisions



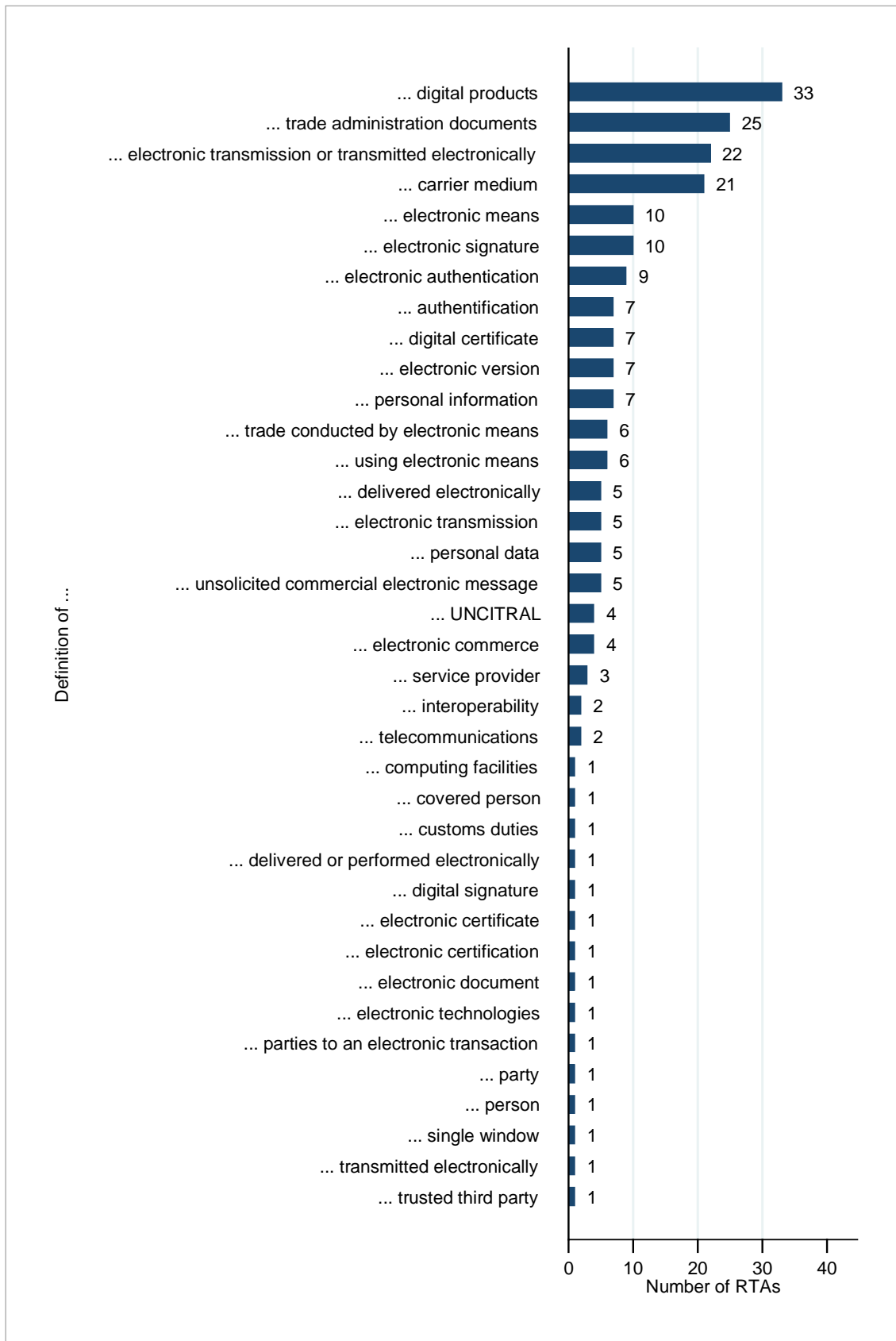
Source: Computations based on WTO RTA database.

Annex 2: Evolution of the Jaccard similarity index by e-commerce provisions



Source: Computations based on WTO RTA database.

Annex 3: List of definitions found in e-commerce chapter



Source: Computations based on WTO RTA database.