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Abstract

This paper maps out Rules of Origin (RoO) in regional trade agreements (RTAs) around the world, and observes that the restrictiveness and complexity of RoO are driven by factors specific to each RTA, including economy size and level of development. Given the powerful political economy forces that generate and determine the origin regime, harmonization, insofar as this means requiring identical rules for unconnected RTAs, is not practical and could be counterproductive. However, one can imagine rules that, if agreed at the multilateral level, could help limit the distortions caused by the RoO of the ever-increasing number of RTAs. This would be a process of “multilateralising” preferential RoO. Furthermore, there are mechanisms that could allow regions with particularly dense networks of overlapping RTAs (for example the Americas and, increasingly, Asia) to replace the spaghetti bowl with something more like a plate of lasagne. This would be a process of “convergence” of RoO. Finally, these two approaches can and should be mutually reinforcing: convergence regimes should be established within the framework and limitations of multilateral rules, whereas the multilateral rules should be established in a way that promotes and facilitates the negotiation of such regimes.

1. Introduction

The proliferation of regional trade agreements (RTAs) around the world has focused policy attention to preferential rules of origin (RoO). The concerns voiced over RoO are two-fold: restrictiveness and divergence. Restrictive RoO can introduce undue barriers to trade between RTA members and non-members, thus dampening RTAs' trade-creating potential. Divergences in RoO across regimes can increase the transactions costs for countries and companies dealing on two or more RTA fronts simultaneously, especially when they are unable to cumulate production and inputs across agreements. These two issues are intricately linked: divergence matters more when RoO are binding—i.e., when restrictiveness is consequential for economic decisions and affects firms' production. Non-binding RoO around the world would obliterate the importance of divergence.

The purpose of this paper is to analyse the restrictiveness and divergence in RoO around the world, and to propose concrete ways for reducing them. In particular, we (1) discuss the costs of restrictiveness and divergence on global trade and investment flows and companies' supply chain strategies; (2) strive to quantify the extent of restrictiveness in and divergences among some 58 RoO regimes around the world (which contain a total of 74 sets of product-specific rules, listed in Appendix I); and (3) put forth a number of policy options—including multilateralising RoO at the global level, inducing convergence of RoO regimes in the main world regions, and some combination of the two—so as to facilitate trade and efficient production around the world.

We define “multilateralising” RoO as the establishment of multilateral disciplines on preferential rules within the WTO framework that set guidelines to minimize the systemic harm that can be caused by the current uncoordinated approach. “Convergence” here is a process of establishing a common RoO regime that covers a set of RTAs, and subsequently permits cumulation among the members of these RTAs. Conversely, “divergence” here refers not only to the existence of different rules across agreements, but, in cases of overlapping agreements, also to the absence of cumulation of production across the agreements.

We reach three main conclusions:

- RoO in some of the largest trade blocs and partners (European Union's RTAs, North American Free Trade Agreement, NAFTA, and some Japanese agreements) are among the most restrictive. Agricultural products and textiles and apparel are marked by particularly high restrictiveness scores across regimes. However, it is also the case that US agreements have become less restrictive over time. The more recent intra-Asian agreements tend to be less restrictive and complex than their counterparts in Europe and the Americas.
- There are marked divergences across RoO regimes around the world: on average about one third of all agreements' rules coincide on any given product. Nonetheless, there are clear RoO families centred around the United States, EU, and Mexico, in particular, which suggests potential for some form of regional RoO convergence. Moreover, there are some signs of a *de facto* cross-regional stylistic harmonization of RoO, as US-style agreements are spreading into Asia via the recent trans-Pacific agreements.
- The most ideal solution to the RoO tangle is a strategy of regional convergence governed by a multilateral agreement: putting in place some global guidelines for preferential RoO that would serve to counteract the tendency of larger cumulation zones to erect higher barriers to extra-zone inputs, while also striving to establish common RoO at megaregional levels in order to promote cumulation of production across the existing RTAs. In simple terms, global "capping" of RoO is important so as to not "converge" into trade-diverting megablocs.

The following section of this paper discusses the political economy and economic effects of RoO. Section three gives a descriptive overview of the general patterns in RoO by region. Section four puts forth various analytical measures of the degree of restrictiveness of product-specific RoO and flexibility provided by regime-wide RoO, and uses these measures to draw comparisons within and across RoO regimes. The fifth section goes to the policy recommendations. Section six concludes.

2. What are RoO and What do They do?

2.1 What Are RoO?

There are two types of rules of origin, non-preferential RoO and preferential RoO. Non-preferential RoO are used to distinguish foreign from domestic products and to determine the “official origin” for purposes of establishing anti-dumping and countervailing duties, safeguard measures, origin marking requirements, and/or discriminatory quantitative restrictions or tariff quotas, as well as in the context of government procurement. Preferential RoO, meanwhile, define the conditions under which the importing country will regard a product as originating in an exporting country that receives preferential treatment from the importing country. RTAs, in effect, employ RoO to determine whether a good qualifies for preferential treatment when exported from one member state to another.

Both non-preferential and preferential RoO regimes have two dimensions: sectoral, product-specific RoO and general, regime-wide RoO. We discuss each in turn.

i) Product-Specific RoO

The Kyoto Convention recognizes two basic criteria to determine origin: wholly obtained or produced, and substantial transformation.¹ The wholly obtained or produced-category applies only to one RTA member, and asks whether the commodities and related products have been entirely grown, harvested, or extracted from the soil in the territory of that member, or manufactured there from any of these products. The rule of origin is met through not using any second-country components or materials. Most countries apply this strict and precise definition.

The substantial transformation criterion is more complex, involving three main components that can be used alone or in combinations with each other. The precision with which these components define RoO in RTAs today contrasts sharply with the vagueness of the substantial transformation-criterion as used by the United States from 1908 until the inception of the Canada-US Free Trade Agreement (CUSFTA) in 1989 and, subsequently, the North American Free Trade Agreement (NAFTA) in 1994 (Reyna 1995: 7).²

¹ The Revised Kyoto Convention is an international instrument adopted by the World Customs Organization (WCO) to standardize and harmonize customs policies and procedures around the world. The WCO adopted the original Convention in 1974. The revised version was adopted in June 1999.

² The old criterion basically required the emergence of a “new and different article” from the manufacturing process applied to the original article. It was, however, much-criticized for allowing—and indeed requiring—subjective and case-by-case determinations of origin (Reyna 1995: 7).

The first component of the substantial transformation criterion is a change in tariff classification (CTC) between the manufactured good and its inputs from extra-RTA parties used in the production process. The CTC may require the product to alter its chapter (2 digits under the Harmonized System), heading (4 digits), subheading (6 digits) or item (8-10 digits) in the exporting RTA member. The CTC can be modified by exceptions (prohibitions of inputs that would have met the CTC requirement) or additions (permitting inputs that would have been proscribed by the CTC requirement).

The second criterion is value content (VC), which requires the product to acquire a certain minimum local value in the exporting country. The value content can be expressed in three main ways: as the minimum percentage of value that must have been added in the exporting country (domestic or regional value content, RVC); as the difference between the value of the final good and the costs of the imported inputs (import content, MC); or as the value of parts (VP), whereby originating status is granted to products meeting a minimum percentage of originating parts out of the total.

The third RoO component is a technical requirement (TECH), which requires the product to undergo certain manufacturing operations in the originating country. TECH essentially prescribes or prohibits the use certain input(s) and/or the realization of certain process(es) in the production of the good.³ It is a particularly prominent feature in RoO governing textile products.

The change of heading-requirement is the staple of RTAs. It is used either as stand-alone or in tandem with other RoO criteria. Also frequently used are the import content (usually ranging from 30 to 60 percent), value of parts, and technical requirements. Adding analytical complexity albeit administrative flexibility is that many RoO regimes provide two or more alternative RoO for a given product, such as a change of chapter or, alternatively, a change of heading plus RVC.

ii) Regime-Wide RoO

Besides product-specific RoO, RoO regimes vary by the types of general RoO they employ—including the degree of *de minimis*, cumulation, and certification.

First, most RTAs contain a *de minimis* rule, which allows for a specified maximum percentage of non-originating materials to be used without affecting origin. *De minimis*

³ TECH can be highly discretionary given that lack of classification tools to objectively guarantee sufficient transformation in the production of the good.

essentially softens the rough edges of CTC-based rules of origin. CTC rules are a very binary sort of test, with non-originating inputs either meeting the criteria or not, regardless of their real significance in the context of the final product as a whole. *De minimis* provisions allow goods to qualify as originating despite having some minimal content of non-originating inputs that do not meet the CTC requirements.

Second, cumulation allows producers of one RTA member to use materials from another RTA member (or other members) without losing the preferential status of the final product. For purposes of the policy questions we wish to address in this paper, we define a more simplified taxonomy of cumulation types than is generally used in the literature. Bilateral cumulation refers to provisions that permit goods that are qualify as originating in any one signatory country to be considered as such when incorporated in to a subsequent product in another signatory country.

For our purposes, bilateral cumulation can be based either on products or processes (full cumulation).⁴ Extended cumulation allows some use of inputs from non-signatories. Extended cumulation is the mechanism by which the spaghetti bowl problem can begin to be ameliorated,⁵ and includes diagonal cumulation as a special case.

Another major regime-wide RoO is certification. The purpose of establishing origin certification procedures is to put in place a mechanism for ensuring that preferences are granted only to originating goods, and to establish a system of checks on the accuracy and veracity of claims for preferential treatment. The method of certifying origin is important insofar as it is effective in achieving these objectives at a minimum possible administrative cost. It varies across RTAs. Three fundamental systems can be identified. The first two can be seen as public certification involving an official certifying entity, which can be either an interested party or a third party, and the third party can be the exporting country's government or a designated private entity. The third method requires certification by an interested private party, which may include the producer, exporter, or importer (in many cases these three may be one and the same). A complex method of certifying the origin of goods—generally the public one—is viewed as potentially imposing high administrative costs on exporters.

⁴ The distinction between cumulation based on products or processes is significant but not essential to our policy analysis.

⁵ See also Cornejo and Harris (2007) for extended discussion of this idea. We discuss these implications in the multilateral context in Section V below.

2.1. Why Are RoO Used? Protectionist Content—and Intent?

The economic justification for RoO is to curb trade deflection—to avoid products from non-RTA members being transhipped through a low-tariff RTA partner to a high-tariff one. As such, RoO are an inherent feature of free trade agreements (FTAs) where the member states' external tariffs differ as the members wish to retain their individual tariff policies vis-à-vis the rest of the world (RoW). RoO are also widely used in customs unions (CUs), either as a transitory tool in the process of moving toward a common external tariff (CET), or as a more permanent means of covering product categories where reaching agreement on a CET is difficult, for instance due to large tariff differentials between the member countries. Thus, basically all RTAs contain rules for establishing the origin of goods.

Since a failure to meet the RoO disqualifies an exporter from the RTA-conferred preferential treatment, RoO can and must be seen as a central market access instrument reigning over preferential trade. Notably, the relevance of RoO as gatekeepers of commerce can accentuate over time: RoO remain in place even after preferential tariffs have been phased out. Thus, initially governing access to a small preference, RoO have little capacity for distortion; however, as the tariffs are phased out, the distortionary potential of RoO grows.⁶

What makes RoO particularly relevant is that they are hardly a neutral instrument: given that RoO can serve as an effective means to deter transshipment, they can tempt political economy uses well beyond the efforts to avert trade deflection. Indeed, RoO are widely described as a trade policy instrument that can work to offset the benefits of tariff liberalization.⁷ Often negotiated at up to the 8- or 10-digit level of disaggregation, RoO, like the tariff, make a superbly targetable instrument. Most prominently, RoO can be employed to favour intra-RTA industry linkages over those between the RTA and the RoW, and, as such, to indirectly protect RTA-based input producers vis-à-vis their extra-RTA rivals (Krueger 1993; Krishna and Krueger 1995). As such, RoO are akin to a tariff on the intermediate product levied by the country importing the final good (Falvey and Reed 2000; Lloyd 2001), and can be used by one RTA

⁶ Throughout this paper, we assume this latter scenario has unfolded.

⁷ For example, Hirsch (2002), Estevadeordal and Suominen (2006b), Cadot, Estevadeordal and Suwa-Eisenmann (2006).

member to secure its RTA partners' input markets for the exports of its own intermediate products (Krueger 1993; Krishna and Krueger 1995).⁸

Empirical studies provide grounds for believing that RoO are indeed used for political economy purposes. Estevadeordal (2000) and Suominen (2004) focus on the political economy of RoO in the North American Free Trade Agreement (NAFTA) and EU-Mexico RTA, respectively, finding that tariffs and restrictiveness of RoO are driven by the same political economy dynamics and that RoO play an independent role in arbitrating preferential tariff liberalization. Producers that lobby for the most demanding RoO also lobby for, and obtain, the longest tariff phase-outs. Harris (2007) examines determinants of RoO restrictiveness in a panel of five RTAs in the Americas and finds that restrictiveness respond to the interests of both domestic producers seeking protection and exporters seeking access to protected markets.

The policy implication of these findings are clear: stringent RoO plus long phase-outs are the price integrationist forces will need to pay not only for RTA formation, but for foregoing manifold exclusions and building a meaningful, comprehensive, and liberalizing RTA. Furthermore, while RoO may be a necessary hurdle to unfettered free trade within RTAs, there is evidence that exporter interests also affect restrictiveness. Do RoO, then, distort economic outcomes?

Carrère and de Melo (2006) examine the rates at which US imports from Mexico take advantage of the NAFTA preferences, finding that RoO indeed stifle incentives to qualify for tariff preferences: preference margins of 10 percent would be needed to compensate for the costs of complying with a typical RVC rule of origin. Cadot et al. (2002) disentangle NAFTA's non-RoO and RoO-related administrative costs, finding the latter to approximate two percent of the value of Mexican exports to the US market. Manchin and Pelksman (2007) examine the interplay of tariff preferences in a number of East Asian RTAs, finding that only rather notable preferential margins (of some 25 percent) result in utilization of preferences.

Suominen (2004) and Estevadeordal and Suominen (2006b) examine the trade effects of RoO in some 100 RTAs, finding that restrictive and selective RoO discourage trade flows. At the sectoral level, both restrictive RoO and selectivity in RoO in final goods encourage trade in intermediate goods—which can mean that restrictive RoO engender trade diversion in inputs.

⁸ Furthermore, given that RoO hold the potential for increasing local sourcing, governments can use RoO to encourage investment in sectors that provide high value added and/or jobs (Jensen-Moran 1996; Hirsch 2002).

However, some regime-wide RoO—RoO that apply similarly to all sectors in a given RTA yet vary across RTAs, such as cumulation and *de minimis*—allow for flexibility in the application of product-specific RoO and thus facilitate trade. As such, various regime-wide RoO provisions can counteract restrictive product-specific RoO’s negative effects on trade.

Estevadeordal, López-Córdova and Suominen (2006) analyse the sectoral *investment* effects of NAFTA RoO in Mexico, finding both that foreign direct investment in post-NAFTA Mexico has flowed in sectors with flexible RoO, and that flexible RoO in downstream industries encourage investment upstream. Both findings suggest that NAFTA-era investment in Mexican final and intermediate goods industries has been made by efficient, globally competitive firms thriving on flexible RoO.

Augier, Gasiorek, and Lai-Tong (2005) study of the effects of expanding cumulation within a set of countries already linked by RTAs. They find that the inability to cumulate production across “spoke” economies in a hub-and-spoke arrangement depresses trade among the spokes by 10 to 70 percent. If extending cumulation has such an effect, then the rules were distorting trade after all. The policy implication is that broadening cumulation should be encouraged in further settings.

Less well understood than the trade and investment effects of a given RoO regime or set of regimes are the effects of divergent RoO *across* regimes. Hypothetically, if the various agreements carry widely distinct RoO, they can impose undue transaction costs for traders, investors, and governments dealing in several RTA markets simultaneously (than in the counterfactual case where the rules of the various RTA are exactly the same). IADB (2007) is the first attempt to measure RoO divergence, and IADB (2008) will strive to understand the effects of RoO divergence for companies operating in multiple RTA theatres. The below exercises hope to provide a firmer grasp on RoO divergence—while still not measuring its economic impact.

3. Rules of Origin Around the World: a Descriptive Mapping

This section provides a useful prelude to analysing RoO restrictiveness and divergence by describing the types of preferential RoO used in selected RTAs around the world. We subsequently discuss the structure of non-preferential RoO.

3.1 Product-Specific RoO

i) Europe: The Paneuro System

The RoO regimes employed across the EU's RTAs are highly uniform. This owes largely to the European Commission's drive in the 1990s to harmonize EU's RoO protocols with the European Free Trade Association (EFTA) countries that dated from 1972 and 1973, as well as across the EU's RTAs forged in the early 1990s in the context of the European Agreements with Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia, and Romania.⁹ The harmonization work culminated in 1997 in the launch of the Paneuro system,¹⁰ which established identical RoO protocols across the EU's existing RTAs as well as for the RTAs among the EU's partners, providing for cumulation among the participating countries. The Commission's regulation 46 of January 1999 reiterates the harmonized protocols, outlining the so-called Single List RoO. These RoO are highly complex, combining change of tariff classification mainly at the heading level with exceptions, value content rules, and technical requirements, and varying markedly across products. However, the harmonized RoO do not represent a dramatic break with those of the pre-1997 era.¹¹

The Single List became incorporated in the Euro-Mediterranean Association Agreements between the EU and the various southern Mediterranean countries, and the system of cumulation operates among the regional countries that have signed bilateral agreements with each other. The so-called Paneuro-Med cumulation zone covers the 27 EU members and is gradually incorporating 17 other countries or territories.¹² While the object of this "cumulation system" is to enable goods that fulfil the RoO of one agreement to automatically qualify in other agreements within the system, this also requires that the all countries within the system have

⁹ See Driessen and Graafsma (1999) for review.

¹⁰ The Paneuro rules are also known as the Pan-European Cumulation System (PECS) or the Paneuromed rules.

¹¹ For example, the RoO in nearly 75 percent of the products (in terms of tariff subheadings) in Paneuro and the original EU-Poland RoO protocol published in 1993 are identical. Both the new and the old versions combine CTC with VC and/or TECH. Indeed, EU RoO feature remarkable continuity: the RoO of the European Community-Cyprus RTA formed in 1973 are strikingly similar to those used today. One notable difference between the older and the newer protocols is that the latter allow for an optional way of meeting the RoO for about 25 percent of the products, whereas the former specify mostly only one way of meeting the RoO. The second option, alternative RoO, much like the first option RoO, combine different RoO criteria; however, the most frequently used alternative RoO is a stand-alone import content criterion.

¹² The system of Paneuro-Med system of cumulation operates between the EU and the member states of the European Free Trade Association (Iceland, Liechtenstein, Norway and Switzerland) and Turkey, and countries which signed the Barcelona Declaration, namely Algeria, Egypt, Israel, Jordan, Lebanon, Morocco, Syria, Tunisia and the Palestinian Authority of the West Bank and Gaza Strip. Faroe Islands have been added to the system as well.

RTAs in force with all other countries in the system, which is not yet the case for some bilateral relationships.

The Paneuro RoO model is incorporated also in the EU's RTAs outside the cumulation zone, including EU's Stabilization and Association Agreements with Albania, Bosnia and Herzegovina, Croatia, the former Yugoslav Republic of Macedonia and Serbia and

Montenegro and the EU's extra-regional RTAs with South Africa, Mexico, and Chile.¹³ Also the RoO of the EU's Generalized System of Preferences (GSP) and the 2000 Cotonou Agreement with the African Caribbean, and Pacific (ACP) developing countries are nearly identical to the Paneuro rules. European Free Trade Association's (EFTA) recently concluded RTAs with Mexico and Singapore also follow the model, albeit providing an additional alternative rule in selected sectors, such as plastics, rubber, textiles, iron and steel products, and some machinery products.

ii) The Americas: RoO Poles

There is more variation across RoO regimes in the Americas. Nevertheless, distinct RoO families can be identified.¹⁴ One extreme is populated by the traditional trade agreements based on the Latin American Integration Association (LAIA), which uses a general rule applicable across the board for all tariff items (a change in tariff classification at the heading level or, alternatively, a regional value added of at least 50 percent of the FOB export value of the final good) plus a handful of specific rules applicable to specific products. The LAIA model is the point of reference for RoO used in the Andean Community (CAN) and Mercosur, as well as the agreements between them and with Chile. The Caricom rules of origin are also based on a general change of heading requirement, though the exceptions to this general rule have a flavour more reminiscent of the Paneuro rules and their predecessors.

At the other extreme lie the so-called new generation RTAs such as NAFTA, which is used as a reference point for subsequent US and Canadian agreements in the hemisphere (US-Chile, US-Colombia, US-Peru, Chile-Canada, Canada-Costa Rica RTAs and US-Central America-Dominican Republic RTA, or CAFTA), as well as many of Mexico's agreements, including the Mexico-Costa Rica, Mexico-Chile, Mexico-Bolivia, Mexico-Nicaragua, Mexico-Northern Triangle (El Salvador, Guatemala, and Honduras), and Mexico-Colombia-Venezuela

¹³ See Estevadeordal and Suominen (2003).

¹⁴ See, for example, Garay and Cornejo (2002) and Estevadeordal and Suominen (2005).

(or G-3). The RoO regimes in these agreements may require a change of chapter, heading, subheading or item, depending on the product in question. In addition, many products combine the change of tariff classification with an exception, regional value content, or technical requirement. All of these agreements permit cumulation among the members of each agreement.

The Central American Common Market's (CACM) RoO regime can be seen as located between those of Mercosur and NAFTA: it uses chiefly change in tariff classification only, but in more precise and diverse ways than Mercosur due to requiring the change to take place at either the chapter, heading, or subheading level, depending on the product in question. CAFTA co-exists with the CACM's market access mechanisms under the so-called multilateralism principle, which allows Central American producers to choose between the CACM and CAFTA market access regimes when exporting to the other Isthmus markets. A third set of RoO will exist as an option for trade between CACM countries and the Dominican Republic.

Notably, unlike the EU's pattern of following the Paneuro system even in extra-regional RTAs, US bilateral RTAs with extra-Hemispheric partners—Jordan and Israel—diverge markedly from the NAFTA model, operating on VC alone. US agreements with Morocco, Bahrain, and Oman also use VC almost exclusively, except for textile products where the tariff-shift NAFTA-style rules are applied.

iii) Trans-Pacific Agreements

RTAs of the Americas are shaping the RoO regimes negotiated between countries of the Americas and Asia. US agreements with Singapore, Australia, and Korea are complex and resemble the CAFTA RoO; meanwhile, RoO in the Chile-Korea RTA follow the model of US-Chile RoO. However, these trans-Pacific agreements are less complex overall than their counterparts in the Americas, featuring a strong change of heading component. Peru's agreement with Thailand, and Chile's agreement with Japan and the P4 agreement (Brunei, Chile, New Zealand, and Singapore), as well as Mexico's agreement with Japan all follow the detailed, selective model inherited from their agreements with the United States. Chile's agreement with China stands in contrast to these, applying an across the board VC rule with a handful of exceptions where change of chapter or change of heading are applied.

Meanwhile, further European overtures to the Asian front, such as toward ASEAN and India, will likely bring the Paneuro model to accompany the US model in the region even more.

iv) Asia: Multiple Influences

Some of the main integration schemes in Asia—the ASEAN Free Trade Area, the ASEAN-China and ASEAN-Korea agreements, the Bangkok Agreement, the Australia-Singapore Free Trade Agreement, and South Pacific Regional Trade and Economic Cooperation in Asia-Pacific (SPARTECA)—carry an across-the-board VC rule with relatively few exceptions. However, the proliferation of RTAs in Asia has delivered complexity to the region’s RoO theatre, especially as these countries have entered into agreements with extra-regional partners.

The RoO of the Japan-Singapore Economic Partnership Agreement are complex, as evinced by the more than 200-page RoO protocol. However, much like in the Chile-Korea RTA, many of the Japan-Singapore RoO are based on a simple change in heading criterion, which makes the regime much less complex when contrasted with the Paneuro and NAFTA models. Furthermore, for many products JSEPA introduces an alternative, usually Paneuro-type, freestanding VC rule, which instils generality and flexibility to the agreement. Japan’s agreements with Malaysia and Thailand, on the other hand, repeat the more complex set of rules seen in Japan’s agreement with Mexico.

The Australia-New Zealand Closer Economic Relations Trade Agreement (ANZCERTA) recently replaced their across-the-board VC rule with a set of rules that are quite similar to the rules established in the US-Australia regime. Australia and New Zealand have also entered into separate agreements with Thailand that carry a similar variety of rules.

v) Africa and the Middle East

The relative complexity of RoO in Europe, the Americas, and, increasingly, in Asia stands in contrast to the generality of RoO in many African and Middle Eastern RTAs. The Economic Community of West African States (ECOWAS) and the Common Market for Eastern and Southern Africa (COMESA) in Africa; and the Gulf Cooperation Council (GCC) in the Middle East—are based on an across-the-board VC rule that, when defined as Regional Value Content (RVC), ranges from 30 percent (ECOWAS) to 40 percent (COMESA).¹⁵ Some of the agreements allow, or, indeed, require, RoO to be calculated on the basis of import content. Most of these regimes also specify an alternative RoO based on the CTC criterion; most often the alternative involves a change in heading or, in the case of ECOWAS that has a relatively low RVC requirement of 30 percent, change in subheading.

¹⁵ This is the general case, for some products the rule is 35% regional content measured at Factory Cost.

However, the Southern African Development Community (SADC) RoO approximates the Paneuro model both in *types* of sectoral RoO and in sectoral selectivity. Moreover, there have been some initiatives to renegotiate COMESA RoO; such attempts may well eventually lead to regimes of greater complexity.

vi) Non-Preferential RoO

Non-preferential RoO are used for purposes distinct from those of preferential rules. Even if a country did not use preferential RoO, it would still apply some type of non-preferential RoO. Unlike preferential RoO that have thus far escaped multilateral regulation, non-preferential RoO have been under a process of harmonization since 1995 as mandated by the Uruguay Round's Agreement on Rules of Origin (ARO). Indeed, the rapid evolution of the preferential RoO panorama stands in contrast to the glacial progress of harmonizing non-preferential RoO. The harmonization work, propelled precisely by growing concerns about the divergent national RoO's effects on trade flows, has been carried out under the auspices of the Committee on Rules of Origin (CRO) of the World Trade Organization (WTO) and the Technical Committee on Rules of Origin (TCRO) of the Brussels-based World Customs Organization. The latter has been responsible for the technical part of the work, including discussions on the RoO options for each product.

The harmonization drive was initially scheduled for completion by July 1998. However, the deadline has been extended several times since then. As of now, the pending product-specific issues involve some 30 products. There are also two major issues that have yet to be resolved—use of the value added vs. change in tariff classification principle in assembly in Harmonized System chapters 84-90, and implementation issues, particularly the use of the harmonized non-preferential RoO in anti-dumping cases.¹⁶

While ARO is centred on non-preferential RoO, its Common Declaration with Regard to Preferential Rules of Origin spells out a requirement for the members to keep the Secretariat informed about their preferential RoO. In their current structure, the non-preferential RoO approximate the Paneuro and NAFTA models in sectoral specificity, yet are less demanding than

¹⁶ ARO states that non-preferential rules are to be the basis for antidumping actions. However, some WTO members, such as the United States, Korea, and Japan, have argued that the calculation of the margin of dumping—the wedge between the price of the exported good and its value in the domestic market—is per the Agreement on Anti-Dumping based on the concept of exporting country and not on the country of origin. Many members also resist the application of harmonized RoO in anti-dumping actions because of the changes and constraints this would impose on their respective domestic anti-dumping legislations.

either of the two main RoO regimes. However, since the final agreements has yet to be reached, the ultimate degree of complexity and restrictiveness of the non-preferential RoO remains to be gauged.

3.2 Depicting Product-Specific RoO around the World

This part maps out RoO regimes around the world by their various components discussed above. Figure 1 focuses on the first RoO component and a staple of most RoO regimes, the change in tariff classification criterion, in the RoO regimes of 26 selected RTAs, plus the current status of the Non-preferential negotiations.¹⁷

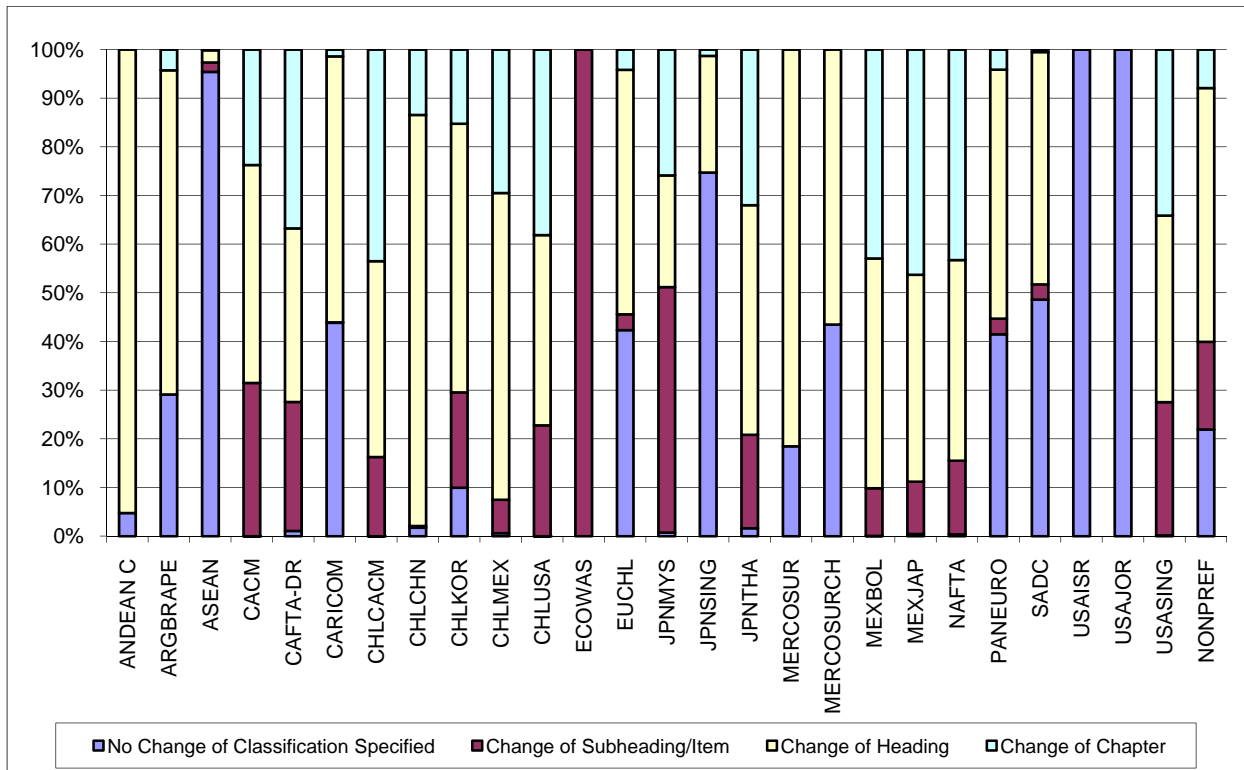
There are some clear families. The Andean Community as well as Mercosur and its agreements with other South American countries make very extensive use of the change in heading criterion, whereas US, Mexican, and most Chilean agreements use a mix of CTC criteria. RoO built upon the NAFTA RoO regime are based on change of heading and change of chapter criteria at relatively even quantities. The US-Chile RTA and CAFTA stand somewhat apart from the NAFTA format for requiring only change in subheading for a substantial number of tariff lines. Meanwhile, the Chile-CACM RTA diverges from the NAFTA model due to its marked change in heading-component, as do the Japan-Singapore and Chile-Korea RTAs. In contrast, the change of heading-criterion dominates EU RoO.

The Japan-Singapore agreements relies on a default rule of “Wholly Obtained” for products with no other rule specified in the agreement annex, and then relies heavily on change of Heading. In contrast, ASEAN uses CTC for a very small number of products, and in its agreements with China and Korea not at all, as is the case in COMESA and ECOWAS. SADC and the EU’s regimes depend on a fairly even split between change of heading and non-CTC rules.

Table B-IV in the appendix presents a highly disaggregated description of the different criteria combinations used.

¹⁷ The figure is based on the first RoO only when two or more possible RoO are provided for a tariff subheading.

Figure 1 - Distribution of CTC Criteria by Agreement, Selected RTA



Source: Authors' Calculations on the basis of RTA texts.

Another notable difference between the various RTAs is that some, such as the Bangkok Agreement, employ the VC criterion across sectors, completely foregoing the use of the CTC-criterion. The EU does this in about a quarter of its RoO.¹⁸ Table B-I in the appendix centres on the level of the VC criterion in the tariff subheadings governed by VC (including combinations of VC with CTC, and VC when employed as an alternative to a CTC criterion) in various RoO regimes and the different calculation methods set forth. The most usual level of VC is 40-50 percent, whether defined as maximum import content or as RVC. However, in the US-Chile RTA, CAFTA, and Chile-CACM RTA, RVC is generally set at lower levels of 30-35 percent; conversely, for some products in the Paneuro and SADC regimes, the permitted share of non-originating inputs in the price of the final product is as low as 15-30 percent (roughly equivalent

¹⁸ The bulk (more than 80 percent) of these RoO are based on the wholly-obtained criterion used particularly in agricultural products, or on the import content-rule that imposes a ceiling of 40-50 percent to non-originating components of the ex-works price of the final product. The stand-alone import content RoO are used particularly frequently for optics, transportation equipment, and machinery and electrical equipment.

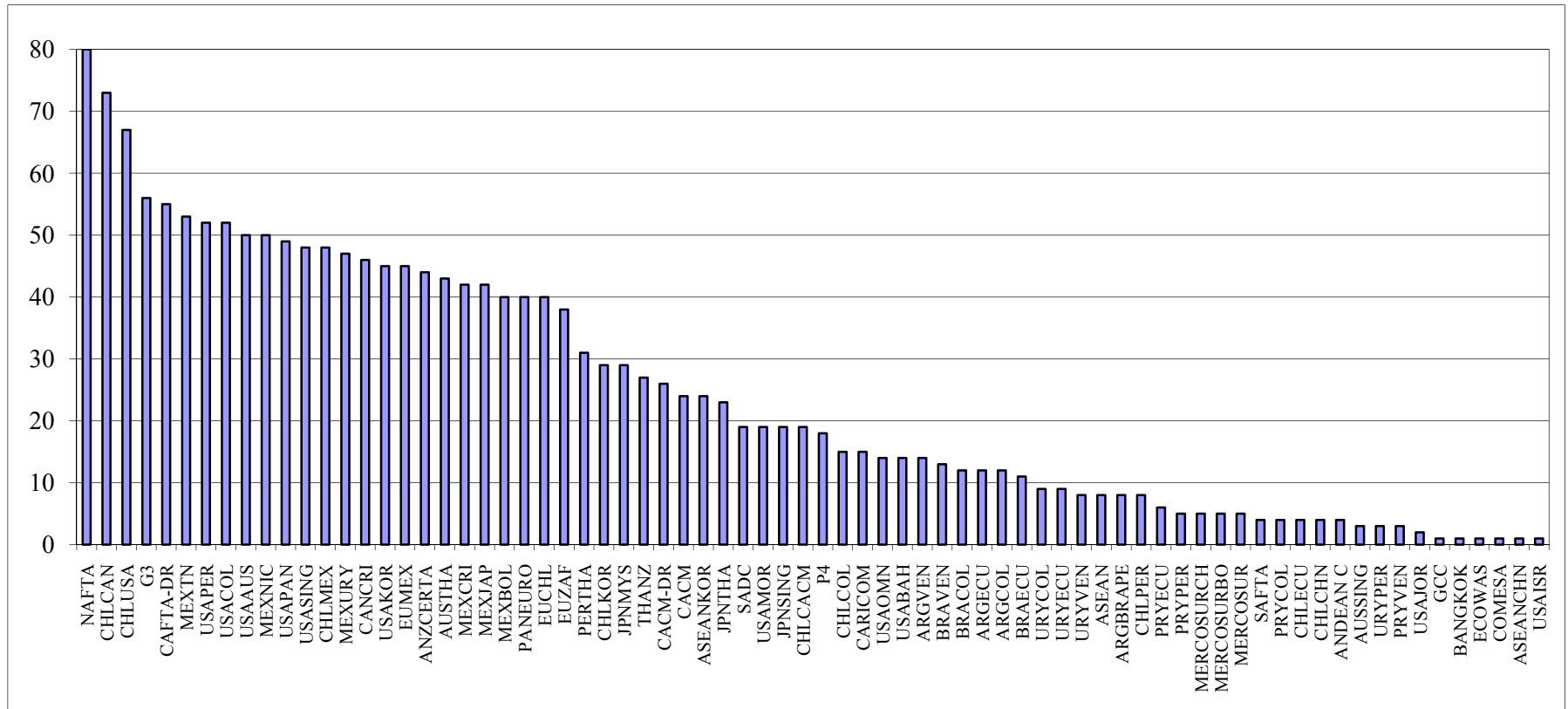
to a 70-85 percent RVC requirement). Differences in the method of calculation can also have crucial implications to the exporters' capacity to meet the RoO.

A RoO can specify requirements based on any of the three types of criteria mentioned earlier (CTC, VC, or TECH) or a combination thereof. The CTC and VC criteria can also vary internally, as CTC rules can be specified at the item, subheading, heading, or chapter level, and can include exceptions and/or additions at these levels as well. The VC criteria can specify different value thresholds, and can also vary in the required calculation method. A rule can thus combine these elements in different permutations to define the degree of processing needed for a product to qualify as originating.

The various RoO employed in the 74 regimes around the world studied in this paper use a total of 211 different combinations of RoO criteria. Figure 2 collapses the number of RoO types by the various regimes, analyzing the number of RoO permutations by regime.¹⁹ The detailed, descriptive typology—and the variation across RoO regimes—is a useful gateway to understanding the political economy of RoO (and of complexity of RoO regimes discussed below) as well as the difficulties of bridging RoO regimes, something we discuss with a more analytical eye in the following sections. NAFTA is the most complex of the agreements in the sample, followed by the two agreements most closely modelled on it, those of Canada and the US with Chile. Other agreements modelled on the NAFTA as well as the EU's agreements are generally the most complex. Agreements within South America, Africa, and Asia are generally the simplest.

¹⁹ Permutations are based on Harris (2007) categorizations of Change of Classification, Addition, Exception, Value Test, Technical Requirement, and Alternative criteria components (See Appendix 2).

Figure 2 – RoO Permutations



Source: Authors' calculations on the basis of RTA texts.

3.3 Regime-Wide RoO

Besides product level RoO, the different RoO regimes can be compared by their general, regime-wide RoO that apply similarly to nearly all goods with a regime. Table B-II in the appendix contrasts the various RoO regimes by three key regime-wide RoO—*de minimis*, cumulation, and certification. While we do not analyze these RoO in detail in this paper, the point to keep in mind is that RoO regimes are immensely complex even beyond the product-specific RoO. As such, measures of RoO types, as well as of restrictiveness of product-specific rules, should be used as but one indicator when RoO analysing regimes.

i) De Minimis

EU RoO regimes feature a higher *de minimis* (at 10 percent) than NAFTA and some other RTAs in the Americas; though most of the newer RTAs apply the higher level (US-Chile, CAFTA, US-Colombia, US-Peru) where the *de minimis* level is the same as in Paneuro. Meanwhile, there is no *de minimis* rule in Mercosur's RTAs or in most RTAs in Asia and Africa. However, the principle does have exceptions in most regimes: for example, EU's *de minimis* does not apply to textiles and apparel, except for allowing an 8 percent *de minimis* of the total weight of textile materials in mixed textiles products. In the EU-South Africa RTA, *de minimis* is set at 15 percent but excludes fish and crustaceans, tobacco products, as well as certain meat products and alcoholic beverages. NAFTA *de minimis* is also calculated based on weight rather than values for textiles and apparel, and does not extend to the production of dairy produce; edible products of animal origin; citrus fruit and juice; instant coffee; cocoa products, and some machinery and mechanical appliances, such as air conditioners and refrigerators (Reyna 1995: 115-117). Many of these exceptions also appear in subsequent US, Canadian, and Mexican RTAs.

ii) Cumulation

The EU's Pan-European system of cumulation applied since 1997 draws a clear distinction between the EU RoO regimes on the one hand, and most RoO regimes elsewhere in the world, on the other. In concrete terms, the system enables producers to use components originating in any of the participating countries without losing the preferential status of the final product. This provision is only available, however, when these countries also have RTAs in force among them, which is not yet true in many cases. The European Economic Association (EEA) agreement between EU and EFTA also permits full cumulation.

The EU's extra-regional agreements do not form part of the Paneuro system, yet some cases allow for extended cumulation. The EU-South Africa RTA allows both parties to cumulate diagonally with the ACP states. In addition, it incorporates the "single territory" concept, whereby South Africa can calculate working or processing carried out within the Southern Africa Customs Union (SACU) area as if these had been performed in South Africa (but not in the EU). The EU's agreements with Mexico and Chile, on the other hand, do not contain provisions for cumulation from any countries other than the direct signatories. The hypothetical reasons why these two agreements, despite lacking access to the Paneuro system of cumulation, still adopted the Paneuro RoO include EU's desire to minimize transactions costs for its customs and exporters operating on multiple RTA theatres at once, and/or the parties' hypothetical desire to enable rapid accession to the Paneuro system of cumulation in a future date (as identical RoO would be required for such an accession to occur).

There are various examples of extended cumulation that is not extensive enough to be properly considered diagonal. In the SPARTECA agreement, Australia and New Zealand allow members of the South Pacific Forum islands to cumulate among themselves and still receive preferential treatment. The Forum islands may not, however, cumulate inputs from New Zealand to export to Australia, or vice versa, as trade between Australia and New Zealand is governed by the ANZCERTA agreement (which does not provide for cumulation of Forum country-originating inputs).²⁰

For reasons probably more political than economic, cumulation in US agreements with Israel and Jordan is similarly tangled and limited. The US-Israel RTA permits cumulation of inputs from the West Bank and the Gaza Strip, but not Jordan. Prior to the negotiation of an RTA with Jordan, the US established a classification of Qualifying Industrial Zones (QIZ) with Jordan and also with Egypt. This program allowed for cumulation of inputs from Israel, the West Bank, and Gaza, but not between Jordan and Egypt. The subsequent RTA between Jordan and the US includes rules that permit cumulation only bilaterally, but the QIZ program remains in effect, allowing continuation of the cumulation of inputs from Israel and the Palestinian territories. The QIZ, however, are still a unilateral concession of the US, not a bilateral treaty obligation like the RTA. The Canada-Israel RTA permits cumulation with the two countries' common RTA partners as of the agreement's entry into force, a set of countries which includes the United

²⁰ The ANZCERTA rules were completely renegotiated in 2006 with the new rules going into force in 2007.

States and no other. Unlike the political issues that undoubtedly complicate the US agreements, this extension of cumulation most likely accommodates existing integration of Canadian industry with US suppliers.

The DR-CAFTA agreement between the US, Central America, and the Dominican Republic contains provisions for cumulation of inputs from Canada and Mexico in the production of Garments of woven fabric (HS Chapter 62). These provisions are subject to negotiation of origin verification protocols different from those in NAFTA as well as adjustments to the rules in the agreements of the Central American countries with Mexico. Thus far, Mexico has participated actively in the negotiation and implementation of these changes, while Canada has shown less interest. This provision is available to the Dominican Republic for a transition period, by the end of which they must negotiate a RTA with Mexico in order for it to remain in effect²¹.

Elsewhere in Latin America, there are other attempts at extended cumulation. One case in point is the recent agreements between Mercosur and the Andean Community. While these agreements share a common origin text, including a provision for cumulation that includes all nine countries (including Bolivia), the product-level rules were negotiated bilaterally, resulting in 16 full sets of rules. Because these rules are not uniform across bilateral relationships, there are many opportunities for “triangulation” wherein minor processes undertaken in one country can confer origin for purposes of export to a given partner when those same processes would not confer origin for the same partner if undertaken in a third member of the group.²² While there have been some initial attempts to mitigate this problem, no clear solution has yet been seen.

Singapore has pursued innovative mechanisms in its RTAs that, while not extending cumulation properly speaking, do allow for greater participation of non-members in the production of originating goods. The main idea is centred around adding flexibility to the calculation of the value content in order to help the many Singaporean industries that have extensive outsourcing ties to qualify for the preferential treatment provided by its RTA partners. There are two main mechanisms: outward processing (OP) and integrated sourcing initiative (ISI). OP is recognized in all of Singapore’s RTAs, while ISI is incorporated in the US-Singapore FTA. The concept of OP enables Singapore to outsource part of the manufacturing

²¹ The beginning of these negotiations has already been announced.

²² See Table 8 of Cornejo and Harris (2007) for an analysis of the differences in the product-level rules of these agreements.

process, usually the lower value-added or labour-intensive activities, to the neighbouring countries, yet to count the value of Singaporean production done prior to the outsourcing activity toward local, Singaporean content when meeting the RoO required by the export market. Table 1 illustrates the process.

Although the OP concept applies only to products with a value added rule, and the value added in the non-member country is not counted towards the required originating content, it is credited to have encouraged higher value activities to be retained in Singapore, while outsourcing labour-intensive and low-value processes. For its part, ISI operating in the US-Singapore RTA applies to non-sensitive, globalized sectors, such as information technologies. Under the scheme, certain IT components and medical devices are not subject to RoO when shipped from either of the parties to the RTA²³. The scheme is designed to reflect the economic realities of globally distributed production linkages, and to further encourage US multinationals take advantage of ASEAN countries’ respective comparative advantages.

Table 1 – Operation of Outward Processing in Singapore’s FTAs

<u>Stage 1</u>	<u>Stage 2</u>	<u>Stage 3</u>
Singapore → Foreign Country → Singapore → Exported		
<i>Conventional RoO → Stage 3 = Local Content</i>		
<i>Recognition of OP → Stage 1 + Stage 3 = Local Content</i>		

iii) Certification

EU RoO regimes employ the public certification method, requiring the use of a movement certificate that is issued by the exporting country government once application has been made by exporter or the exporter’s competent agency. However, the EU regimes provide for an alternative method of certification by interested parties, the invoice declaration, for “approved exporters” who make frequent shipments and are authorized by the customs authorities of the exporting

²³ Most of these products are subject to the Information Technology Agreement (ITA) and thus have zero MFN tariffs.

country to make invoice declarations. The fact that provision has been made for the authorization of interested party certification implies that there are recognized cost savings in avoiding the governmental certification process. The need to be authorized, however, may in some cases serve as something of a barrier to entry for new exporters.

Meanwhile, NAFTA and a number of other RTAs in the Americas as well as the Chile-Korea RTA rely on certification by interested parties, which entails that the exporter's signing of the certificate suffices as an affirmation that the items covered by it qualify as originating. In CAFTA, the importer claiming preferential tariff treatment, rather than the exporter, is the party ultimately responsible for declaring that the good is originating. While this system places the burden of proof on importers and is thus the simplest and least costly for exporters, it opens the door to more potential abuse and fraud. As such, the cost to customs of establishing and operating an effective origin verification regime may be more significant.

In agreements based on the LAIA model, such as Mercosur, and the Andean Community, as well as CARICOM, ASEAN, ANZCERTA, SAFTA, the Bangkok Agreement, Japan-Singapore, and ECOWAS require certification by a public body or a private umbrella entity approved as a certifying agency by the government. The exporter is required to furnish the certifying agency with a legal declaration of the origin of the product, which is then certified. This method has the advantages of review by a relatively disinterested third party, as well as the potential for certifying entities being more familiar with the production processes than government agents might be, but also similar costs to traders as the governmental certification method.

Restrictiveness and Divergence: The Scorecard

There are two main concerns voiced over RoO: restrictiveness and divergence. Restrictive RoO can introduce undue barriers to trade between RTA members and non-members. Divergence in RoO across RoO regimes can increase the transactions costs for countries and companies dealing on two or more RTA fronts simultaneously. These two concepts are linked: divergence matters more when RoO are restrictive.

The manifold RoO combinations within and across RoO regimes present a challenge for cross-regime comparisons—that is, for observing restrictiveness and divergence. This section strives to overcome the complexity by quantifying RoO types and RoO restrictiveness. The first part discusses, and subsequently measures, restrictiveness and variation of restrictiveness across

products *within* regimes, or complexity. The second part centres on discussing and measuring differences *across* RoO regimes.

4.1 Restrictiveness and Complexity

The capacity of RoO to affect economic decisions depends on the degree to which they restrict the options of economic actors and the size of the tariff preference to which compliance with these rules gives access. The degree to which RoO restricts the options of producers/exporters is here called “restrictiveness.”

Two concepts are key for better understanding RoO restrictiveness—input pool and geographical pool.

In terms of input pool, RoO establish for each product which of its inputs and/or what fraction of its inputs may be “non-originating” in order for the product to retain access to the preferential tariff treatment established by the agreement. The fewer restrictions placed on the use of non-originating inputs, whether qualitative or quantitative, the more “open” the preferential bloc is to RoW. The more open the RoO regime, the bigger the input pool is.

As for the geographical pool, any origin regime (implicitly or explicitly) establishes the list of countries whose originating products can be considered originating for purposes of the agreement (this might also be referred to as the “cumulation zone”). In the case of most RTAs, this list is simply the set of direct signatories to the agreement. Some agreements, however, will also specify additional countries whose originating products may be used as inputs in one or more direct signatories, with these inputs being treated as originating in the latter. This is the case of the treatment of sub-regional integration groups in the EU’s GSP scheme, and the bilateral agreements that make up the Paneuro cumulation system. The larger the list of countries whose products qualify as originating in the origin regime of a given RTA, the larger the implicit geographical pool. The longer the list of countries and the larger the countries are, the larger the geographical pool.

Rules of origin thus determine both the openness of a bloc and its size, which, in turn, play a role in defining restrictiveness. Increasing the openness or size—input or geographical pool—can be expected to reduce the distortions caused by the origin regime that governs a given bloc.

i) Measuring Restrictiveness

How to measure restrictiveness? A RoO is more restrictive as it permits less use of inputs from outside the cumulation zone, where the cumulation zone is the set of countries whose products can be considered as originating when used as inputs in later production. This concept of restrictiveness is the most easily observed, as it is expressed in the text of the rule itself.

There are two measures based on this idea. The first is Estevadeordal (2000), which constructs a categorical variable ranging from 1 (least restrictive) to 7 (most restrictive) on the basis of NAFTA RoO. The index can be conceptualized as an indicator of how demanding a given RoO is for an exporter. The observation rule for the index is based on two assumptions: (1) change at the level of chapter is more restrictive than change at the level of heading, and change at the level of heading more restrictive than change at the level of subheading, and so on; and (2) VC technical requirements (such as chemical transformations) attached to a given CTC add to the RoO's restrictiveness. Several other studies have applied variations of Estevadeordal's index, such as Anson et. al. (2003), Cadot et al. (2006), Suominen (2004), Portugal-Perez (2006), etc.) based on the same underlying logic.

The second measure is Harris (2007). It presents a significant overhaul of Estevadeordal's methodology, applying similar logic but much more precisely capturing details of the variation across products and across agreements in the definition of the rules of origin.²⁴ Appendix II gives a detailed explanation of the calculation of these indices.

Figure 3 reports the restrictiveness of RoO as calculated at the six-digit level of disaggregation in selected RTAs by using Harris's measure, while Figure 4 displays the "selectivity" or "complexity" (standard deviation in RoO) of the RoO regimes by engaging the same measure. EU, Mexican, Chilean and US agreements are among the most restrictive. However, it is also the case that US agreements have become less restrictive over time: NAFTA is more restrictive than the US-Chile RTA of 2004, which is more restrictive than CAFTA of 2005, which is more restrictive than US-Peru and US-Colombia RTAs negotiated in 2006. Box 1 discusses these inter-temporal trends in detail.

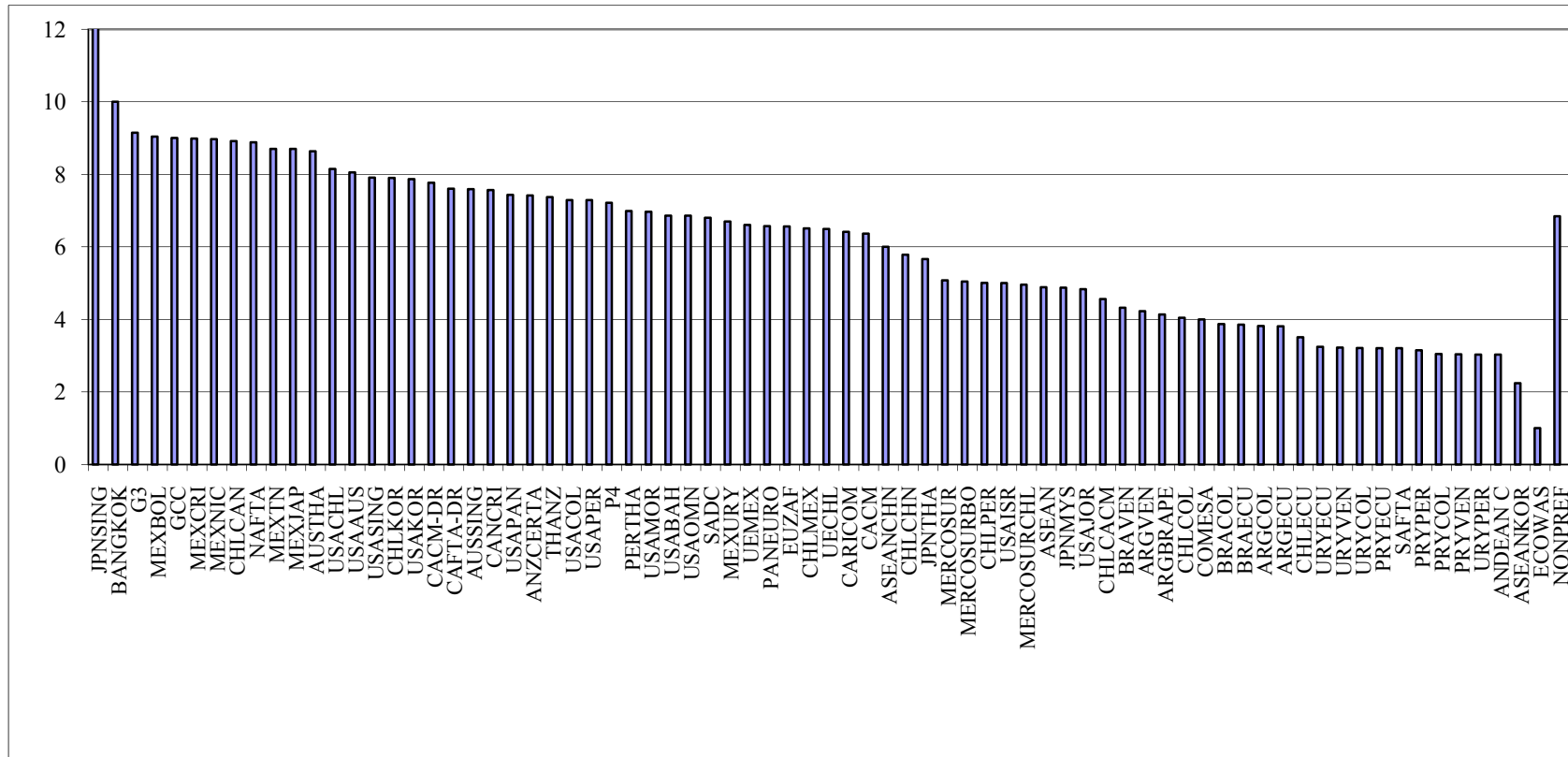
²⁴ Given that these measures of restrictiveness are a function of *ex ante* restrictiveness rather than the effective restrictiveness following the implementation of the RoO, the methodology—much like that of Garay and Cornejo (2002)—is particularly useful for endogenizing and comparing RoO regimes. The methodology allows RoO to be analyzed in terms of their characteristics rather than their effects, that is, their observed rather than their effective restrictiveness.

Except for the Japan-Singapore RTA, where restrictiveness is caused by having set their default rule as wholly obtained (applicable when no rule is specified in the annex), agreements in Asia are less restrictive, in part due to the tendency to set across the board VC rules.

Table B-III in Appendix III catalogues the sectoral restrictiveness by using Harris's measure. The data reveal that agricultural products and textiles and apparel are marked by a particularly high restrictiveness score in each regime, which is consistent with the empirical results of Estevadeordal (2000), Suominen (2004), and Harris (2007) in that the restrictiveness of RoO is driven by the same political economy variables that arbitrate the level of tariffs, particularly in the EU and the United States. Non-preferential RoO exhibit similar patterns across sectors, communicating the operation of political economy dynamics also at the multilateral level. Suominen (2004) finds that weighting the sectoral restrictiveness values by trade produces very similar results—which may in and of itself be an indication that stringent RoO stifle commerce.²⁵

²⁵ See Suominen (2004) for weighted RoO.

Figure 3 - Restrictiveness of RoO (Harris Index)



Source: Authors' calculations on the basis of RTA texts

Box 1 – Good News on RoO in the Americas

While RoO regimes may carry hidden protectionism, an examination of their evolution over the past few years in the Americas gives reasons for optimism.

First, NAFTA RoO have been under a liberalization process.²⁶ The Working Group in charge of the rules of origin review process has completed two phases of RoO simplification covering such sectors as alcoholic beverages, petroleum/topped crude, esters of glycerol, pearl jewellery, headphones with microphones, chassis fitted with engines, photocopiers, chemicals, pharmaceuticals, plastics and rubber, motor vehicles and their parts, footwear, and copper. The reforms, once complete, are estimated to extend to more than US\$100 billion in trilateral trade.

Second, US RoO regimes have progressively evolved toward a more liberal framework from NAFTA to US-Chile RTA, CAFTA, and on to US-Colombia and US-Peru. The latter three agreements incorporate simpler, more practical, and less restrictive product-specific rules of origin than NAFTA did.

Third, the various regimes designed after NAFTA are fairly similar vis-à-vis each other, in both the types of rules of origin specified and their level of restrictiveness. This can alleviate any potential transaction costs for NAFTA-model adherents that export under preferential terms to two or more NAFTA-model RTAs.

Fourth, the NAFTA-style regimes contain terms that alleviate the restrictiveness of product-specific RoO. This helps alleviate the compliance costs of the product-specific rules of origin. Even more encouraging is the movement toward somewhat higher de minimis levels and the willingness to experiment with diagonal cumulation. CAFTA stipulates that the member countries can use materials for apparel (Chapter 62) from Mexico or Canada as if they were CAFTA-originating.

Fifth, the NAFTA model has now been adopted in numerous free trade agreements. The current adherents will thus find it fairly easy to negotiate, adopt, and implement future free trade agreements. The costs of adjusting to RoO should thus have been incrementally diminishing for a good part of the hemisphere.

Finally, negotiators on rules of origin throughout the Americas, and particularly in RTAs based on the NAFTA model, have proved their willingness to revise existing RoO regimes to make them more flexible. NAFTA's review of its rules of origin is the clearest example, demonstrating commitment to keeping North America's rules of origin apace with changes in technology and the globalisation of production, and potentially marking a growing role of export interests in setting trade policy.

More generally, the precision of the NAFTA-model rules of origin can be viewed as superior to the vaguely defined and subjective rules of origin of the past. Because the NAFTA regime is based on the change in tariff classification, it provides a fairer, more transparent, and more easily verifiable RoO model than regimes based on value content, which paradoxically can be hard to meet in countries with low production costs and are difficult to implement in the face of fluctuations in exchange rates and changes in production costs. Precise rules of origin do not need to be restrictive rules of origin; the NAFTA review process may well yield rules of origin that are both precise and flexible.

²⁶ The initial set of revised NAFTA rules of origin took effect on 1 January 2003; see "Regulations Amending the NAFTA Rule of Origin Regulations," *Canada Gazette*, 1 January 2003 (available at canadagazette.gc.ca/partIII/2003/20030115/html/sor24-e.html). In July 2004, the trade ministers of the NAFTA countries instructed the trilateral Working Group on Rules of Origin to extend the liberalization drive to all items with a zero most-favored-nation tariff for all of the NAFTA members. The August 2007 joint declaration of the Montebello Summit among the three NAFTA countries' heads of state endorsed "an analysis of the free trade agreements that each country has negotiated subsequent to the NAFTA, beginning with those in the western hemisphere, including opportunities for innovative provisions on rules of origin."

ii) Complexity of Regimes

As seen in Figure 2, RoO regimes can be immensely complex, containing numerous different RoO and RoO types. Such complexity, also referred to as sectoral selectivity in RoO, presents a further caveat for the analysis of restrictiveness and divergence for a number of reasons. First, more complex RoO regimes will be more difficult to administer. If a country is party to several regimes that each feature across-the-board rules (zero complexity), there will never be a problem of confusion as to the rule applicable to a given product, or incentives to misclassify a product to take advantage of a different rule.

Compare this to a country party to one or, worse yet, several RTAs that each feature complex RoO regime. An example might be NAFTA or the EU's RoO regime, both among the most complex regimes in the world. Clearly, administering these rules of origin will require customs authorities to take much more care with identification of the correct rule and correct classification of the product.

When there are overlapping regimes that are complex, such as Chile's RTAs with the United States, EU, Korea, and Mexico, the RoO for any given product may vary across these regimes, increasing the likelihood that firms will be required to adjust their sourcing strategies to accommodate different export markets²⁷. These costs could be significant.²⁸

Figure 4 sets out to analyse the complexity of RoO within various regimes. The Mercosur model pertinent to Mercosur-Chile and Mercosur-Bolivia RTAs is more general, yet still exhibits more cross-sectoral variation in the restrictiveness of RoO than the LAIA model marked by the across-the-board change of heading RoO. The generality of the LAIA model is replicated by the most Asian and African RoO regimes. However, some newer RTAs—such as Chile-Korea RTA and SADC—feature high levels of cross-sectoral variation in RoO.

Two interesting points arise from a comparison of Figures 2 and 4. First, regarding US agreements, note that while NAFTA ranks first in Figure 2 based on the number of different combinations of qualification criteria, the more recent US agreements (with Panama, Australia, Singapore, Colombia, Peru, Central America, and Chile) feature higher standard deviations of the restrictiveness index. This implies that NAFTA's 80 permutations all group tightly around a

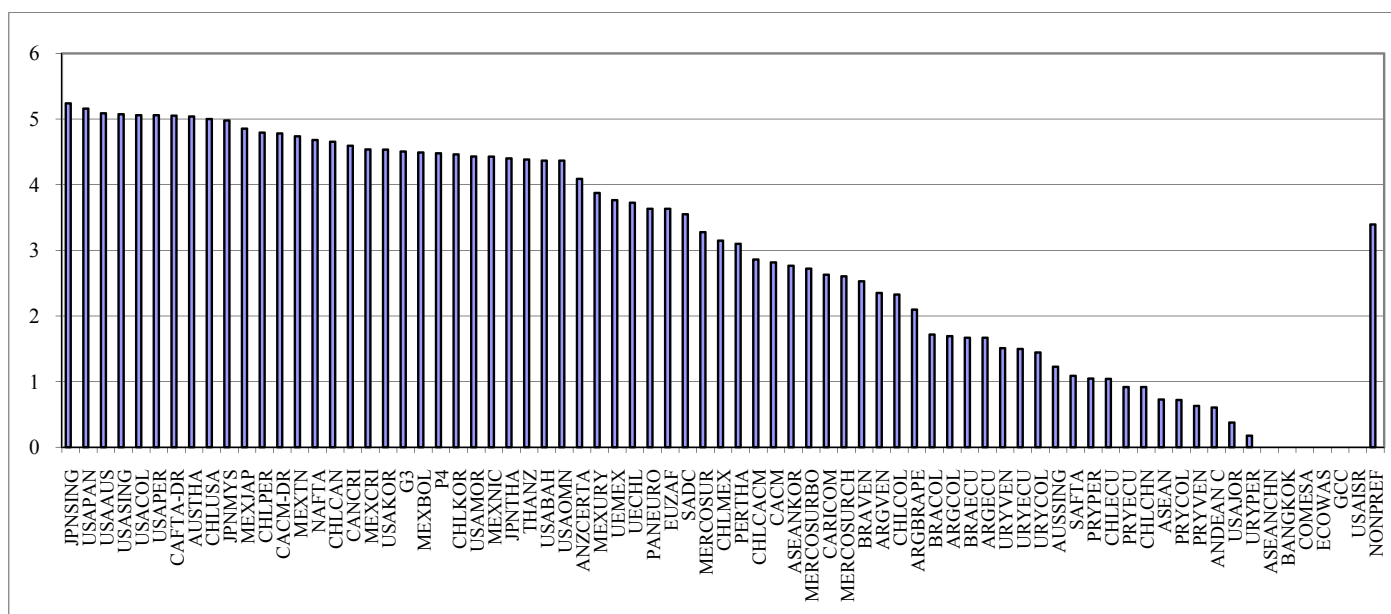
²⁷ Most of Chile's exports consist of products that are wholly obtained in Chile and therefore will meet any origin requirement. The complexity of the origin regimes might, however, serve as an impediment to diversification of Chile's exports.

²⁸The IDB is currently undertaking a survey of firms in several countries in an attempt to begin to quantify these costs.

more restrictive mean, while subsequent agreements must feature a significant relaxing of the restrictiveness of many products, resulting in a lower average restrictiveness as well as a higher standard deviation.

Second, note that Japan-Singapore ranks first in standard deviation, but in the middle based on the number of rule combinations. This is due to that agreement’s specification that all products for which no specific rule is specified in the annex must be wholly obtained.

Figure 4 – Complexity (Standard Deviation of RoO) in Selected RTAs



Source: Authors’ Calculations on the basis of RTA texts.

4.2 Caveats and Stylised Facts

There are some important real-life caveats to the above measures, and thus to the policy recommendations that can be fashioned on RoO: the usefulness of distinguishing effective restrictiveness from observed restrictiveness, and understanding complexity of RoO as a function of the underlying complexity of the RTA trade among the member countries.

i) Observed vs. Effective Restrictiveness

It is important to note here that restrictiveness on paper is one thing: a RoO that is restrictive by the above measures may not be so when the “real” input and geographical pools are taken into

consideration. There are two key issues that qualify RoO restrictiveness, but that are not incorporated in the calculations above.

The first is the fact that RoO regimes employ several regime-wide mechanisms, such as *de minimis* and cumulation that can add flexibility to the application of the product-specific RoO and consequently attenuate the restrictiveness of RoO—and even render them non-binding. Suominen (2004) and Estevadeordal and Suominen (2006b) find that many such measures indeed alleviate the negative trade effects of restrictive product-specific RoO. Several regimes have also experimented with innovative mechanisms to alleviate supply shortages and to help the developing member countries to comply with RoO.²⁹

Second, a RoO is “effectively restrictive” to the extent that it limits both the input and geographical pools, thus increasing the cost of production by requiring firms to use higher-cost regional inputs. This concept of “effective” restrictiveness is less observable, as it requires knowledge of the input-output structure of each product as well as the scale and efficiency of production of the relevant inputs in each country within the cumulation zone. However, this is the sense of restrictiveness that matters economically, both for the degree of liberalization achieved within a RTA and for the degree of impact on third parties. As such, it arbitrates the degree to which a producer can globalise production without foregoing the preferential access in an RTA.

Imagine trade in roasted, ground coffee. In an agreement between the US and Canada, a rule that requires that all coffee products be derived from originating beans would be highly restrictive, effectively cancelling any preferential tariff treatment, as there is no significant production in either country of coffee beans. The same rule applied to trade between the US and Colombia, on the other hand, while still binding on producers of specialized blends of coffee, would be significantly less onerous as Colombia is a major global producer of coffee.

As discussed above, “real” or effective restrictiveness thus depends on the availability of efficient input supplies in the RTA member countries, which one would expect to be correlated with size of the integrating economies. Larger economies are more likely to produce a greater variety of products at a greater scale, and thus with (probably) greater efficiency. This means that an RTA that covers a larger economic area (say, North America or the Europe) is relatively

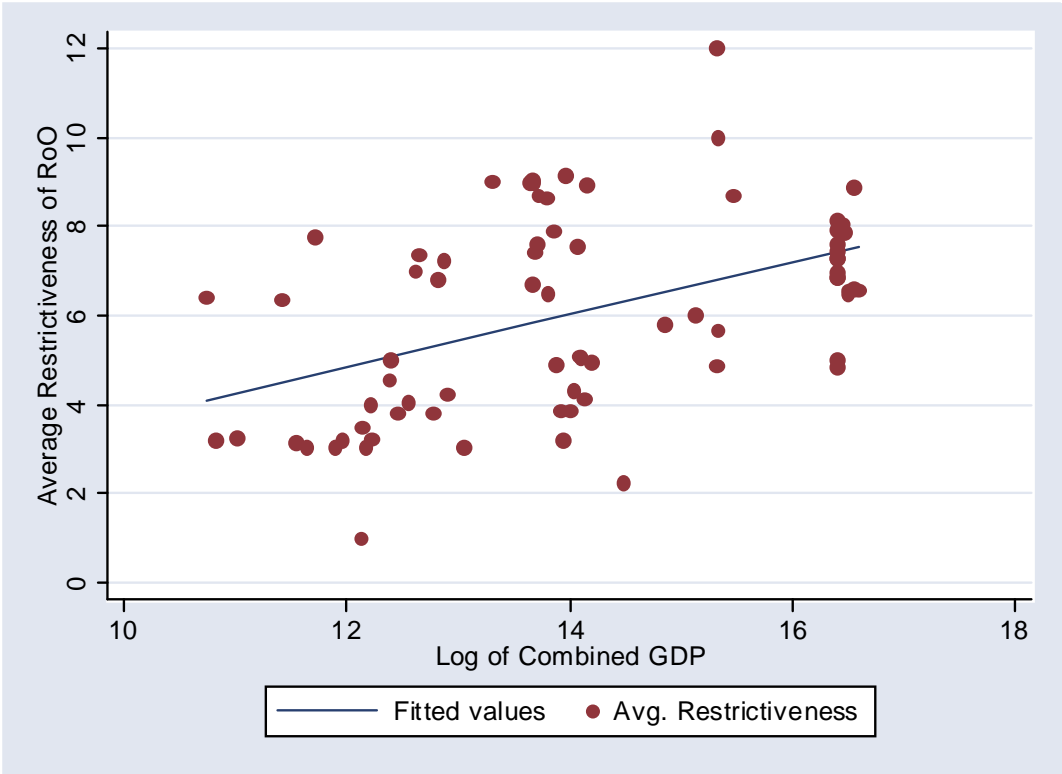
²⁹ See, for instance, Suominen (2004) or Estevadeordal and Suominen (2006) for details.

less likely to exclude the global least cost producer of any given intermediate than is an RTA that covers a smaller economic zone (say, Central America).

This issue of the size of the cumulation zone is of crucial importance when analysing the utility of connecting or multilateralising RoO regimes. However, since effective restrictiveness is so difficult to observe, any broad analysis must move forward with measures of observed restrictiveness (that is, restrictiveness as inferred from the text of the rule alone) as a useful proxy, but bearing in mind that it is a proxy and not an ideal measure.

Figure 5 illustrates the relationship between restrictiveness and the size of the cumulation zone, measured as combined GDP of the member countries.

Figure 5 - Restrictiveness vs. Cumulation Zone



A clear stylised fact is that observed restrictiveness is increasing in the size of the cumulation zone. There are two alternative conclusions that can be drawn from this. One is that large, dominant partners such as the US and the EU tend to dictate more restrictive rules of origin in their RTAs, while developing countries tend to negotiate less restrictive regimes. This

interpretation is perhaps the most popular³⁰, and it certainly is not difficult to find anecdotal evidence to further support it.

However, this explanation ignores the fact that observed restrictiveness is not strictly linked to effective restrictiveness across agreements. A rule with high observed restrictiveness in an agreement with the US or Europe will still allow a firm to source inputs from the vast partner country in the cumulation zone, and the likelihood of that rule precluding the use of inputs from the global low-cost source is lower (though not necessarily zero) than in the case of a rule with the same observed restrictiveness in a RTA joining two small developing countries.

The alternative conclusion to be drawn is that average *effective* restrictiveness could have no relationship, or even a negative relationship, with the economic size of the cumulation zone. This is because the greater availability of inputs implied by the larger economy of the cumulation zone results in rules with greater *observed* restrictiveness in fact having lower *effective* restrictiveness.

ii) Complexity of Rules and of Trade

Complexity of RoO—product-by-product differentiation of RoO within a regime—could be hypothesized to be directly related to the complexity of the bilateral trade relationship (Harris 2007). It is broadly recognized that the level of restrictiveness of the rules of origin is affected by political economy variables. Regardless of the specific political economy model employed, the variables that will likely determine the rule of origin for a particular product will focus on the levels of its production in the participating countries as well as the scale and efficiency of production of its inputs both within and outside of the cumulation zone. Consequently, the number of products for which the political economy pressures reach some minimum threshold for influencing the negotiations of the product-specific rule will depend on the number of products actively traded among the participating countries.

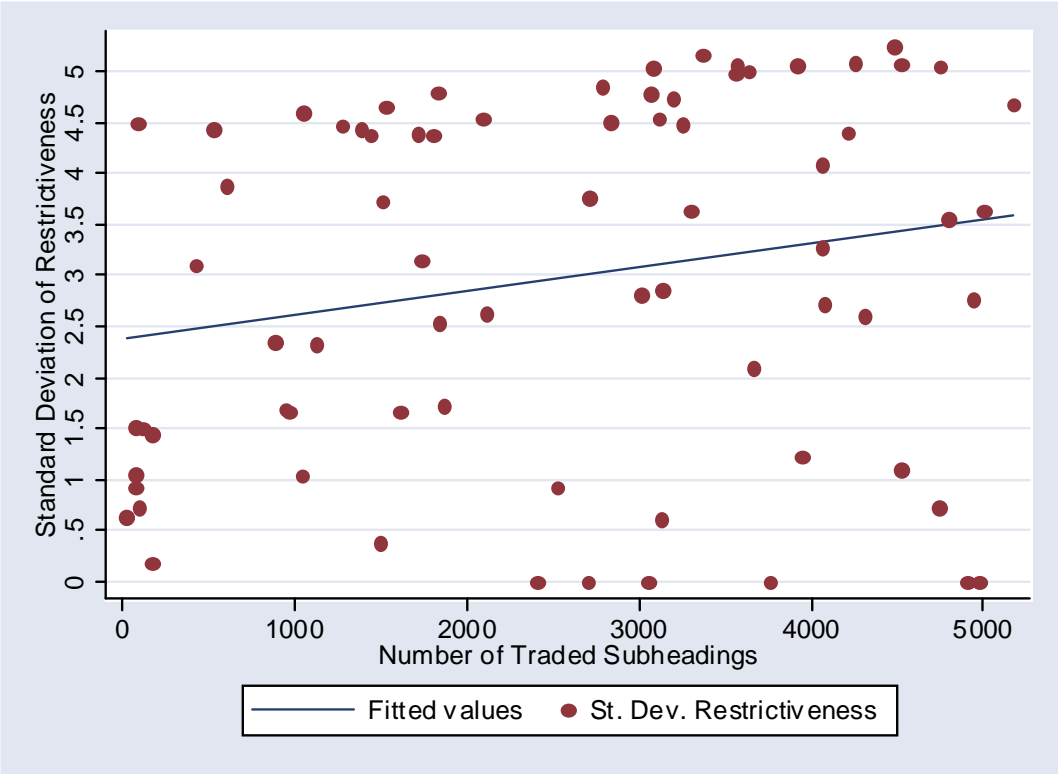
Complexity of the origin regime (as measured by the standard deviation of RoO restrictiveness within an agreement³¹) is thus dependent on the complexity of the pattern of trade among the members of the RTA (as measured by the number of HS subheadings in which products are traded). For the purposes of the arguments presented here, the political economy forces that drive RoO will apply to higher numbers of products, when RoO under negotiation are

³⁰ See, for instance, Cadot et al (2006).

³¹ The same results obtain when complexity is measured by the number of different criteria combinations used in the set of product-level rules as we describe in Figure 2.

to govern the preferential trade of larger blocks (with consequently more complex trading relationships). This will hypothetically create a tendency to more complex origin regimes in RTAs with more diversified sets of traded products. Figure 6 illustrates the degree to which this is observed in the data.

Figure 6 - Complexity of RoO and of Trade



The strong outliers in this relationship are interesting cases. The points with low numbers of traded subheadings and high variation in rules of origin are most notably Mexico-Bolivia (85 products), US-Morocco (527 products), and Canada-Costa Rica (1,050 products). The first and third of these are agreements by NAFTA members that were negotiated shortly after the conclusion of the NAFTA negotiations, when those rules seemed the most appropriate (note that both feature net-cost based VC rules, a calculation method that has largely fallen out of use in recent agreements except for automotive products). The US-Morocco agreement features an across the board VC requirement except for textiles and a small set of products that seem to have been of particular interest to Morocco (some fruits and vegetables, coffee, and some auto parts).

This large difference in the restrictiveness of the general rule and those identified for special treatment seems to be generating the especially high standard deviation figures.

In the opposite corner, the notable outliers are the larger Asian agreements (ASEAN, ASEAN-China, Bangkok Agreement) and the US-Israel agreement. All of these agreements feature across the board VC rules, except ASEAN that has a relatively small number of specific rules for some products (primarily steel, textiles, and wood). This choice of regime is a bit harder to explain. A possible reason might be that many of these countries maintain relatively low MFN tariffs or very limited preferential tariff liberalization, and so the levels of preference are quite low, necessitating only minimum rules.³² This is backed up by anecdotal evidence of relatively low utilization rates in ASEAN.

We thus have a second stylised fact that complexity of rules of origin is increasing in the diversity of products traded among RTA members. The more product-specific interests there are to satisfy with the origin negotiations, the more different outcomes we are likely to find.

iii) Restrictiveness and Complexity: The Key Policy Issues

The main important point here, and key to capturing our policy recommendations, is that restrictiveness and complexity within regimes imply that as regions of overlapping RTAs pursue convergence, forming groups with greater economic size and variety of traded goods, there could be a tendency towards greater observed restrictiveness and complexity. Both of these are potentially problematic for the international trading system. Greater observed restrictiveness, while not necessarily implying greater effective restrictiveness, still amounts to increasing barriers to trade among regions, a problem in terms of GATT Article XXIV, which precludes RTAs that raise barriers toward third parties. Greater complexity of the origin regimes simultaneously implies increasing difficulty of administration and thus greater potential uncertainty, especially in developing countries.

To be sure, the caveats have their caveats. As noted above, the theory may not always play out in practice. The observed restrictiveness did not really change in the EU's RoO harmonization and pursuit of the Paneuro system, since the new RoO were remarkably similar to the old ones. It may not necessarily occur in other regions, particularly if and when countries are already loosening their RoO, as is the case of the United States. Moreover, economic dynamics,

³² See, for example, Inama (2005).

such as the expansion of global supply chains, can strengthen industry lobbies interested in ever-looser RoO.

Moreover, none of this is to say that the benefits of expanded cumulation (and the potential reduction in *effective* restrictiveness) within a convergence zone would not outweigh these potential problems. However, careful consideration of these problems ahead of time can lead to strategies for mitigating their effects.

4.3 Divergence

RoO restrictiveness can be consequential to, and even prohibitive of, trade in any one regime. However, RoO also feature a systemic problem of divergence across regimes. To our knowledge, except for IDB (2008) there are no empirical attempts measure the costs of RoO divergence. Yet, besides the distortionary effects of RoO in any given regime, the divergence can impart economic costs, at least in principle. The most acute costs of divergence are two-fold.

First, the proliferation of RTAs can “balkanise” the global trading system. If the various agreements carry widely distinct RoO, they can impose undue transaction costs for traders, investors, and governments dealing in several RTA markets simultaneously (than in the counterfactual case where the rules of the various RTA are exactly the same). Firms dealing on different RTA fronts may need to alter their production patterns to meet the idiosyncratic rules of origin and other requirements of each of the different RTAs; customs administering imports from numerous RTA partners may have to refer to multiple, divergent sets of rules instead of a single document applicable to all RTAs.

The administration costs for customs are also likely to be relevant for traders. For example, complications for customs can result in delays in shipments clearing customs, which increases time to market for finished goods and can increase inventory costs when the delayed shipments are intermediate goods. Also, complications in administration increase the odds for errors in the application of rules and thus potential denial of preference for originating products or uneven competition from firms that benefit from errors in application of rules. In general, these problems can increase uncertainty for traders, depressing trade. All of these problems will likely hit traders in developing countries disproportionately, as theirs are the customs services more likely to be unprepared to handle the complicated administrative tasks.

Second, RoO divergence risks the rise of *de facto* hub-and-spoke systems centred around a few hub countries, where the potential cost savings from cumulation of production among the

spokes remains untapped. While this arrangement may hold some benefits for the hub country, the spokes will be at an increasing disadvantage, as they will be unable to use inputs from other spokes when producing for the hub market. Even in cases where the hub-and-spoke pattern is less clear (i.e., where all bilateral pairs have RTAs, and there are multiple “hubs”), the barriers to cumulation can generate significant inefficiencies and reduced trade. Indeed, except in the case of the EU which has vary little variation in rules across agreements, even the “hubs”, including the US, have generally negotiated significantly different rules of origin across their agreements. While these countries are expected to have customs administrations that can manage these variations, these differences could still cause difficulties for producers.

Again, both balkanisation and hub-and-spoke are less relevant when RoO are non-binding—non-restrictive or in the presence of zero MFN tariffs. They become increasingly relevant when RoO are binding *and* when the various RoO regimes differ from each other.

Figures 7a and 7b illustrate these issues. Rules of origin effectively set up walls around RTA members that prevent the use of some inputs in each product. Multiple overlapping RTAs with divergent origin regimes thus entail many such walls to free and efficient sourcing of inputs. When the rules are more restrictive, the walls are higher (as depicted by the heavier lines around each RTA in Figure 7a), and efficient allocation of resources is even more difficult. In this sense, then, more restrictive rules of origin will accentuate the divergence problem for countries that have entered into multiple RTAs, as both the number and height of the walls will be higher.

Figure 7a – Divergence with High Restrictiveness

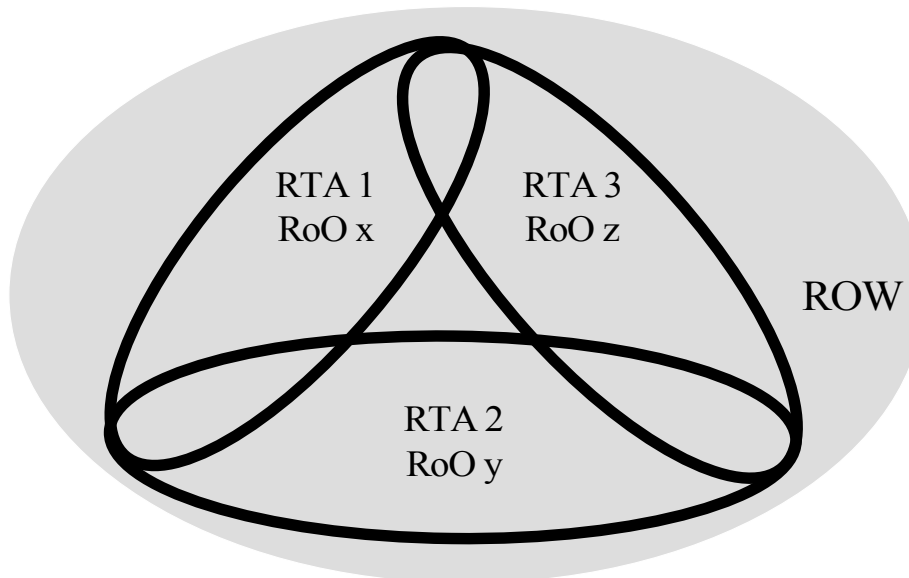
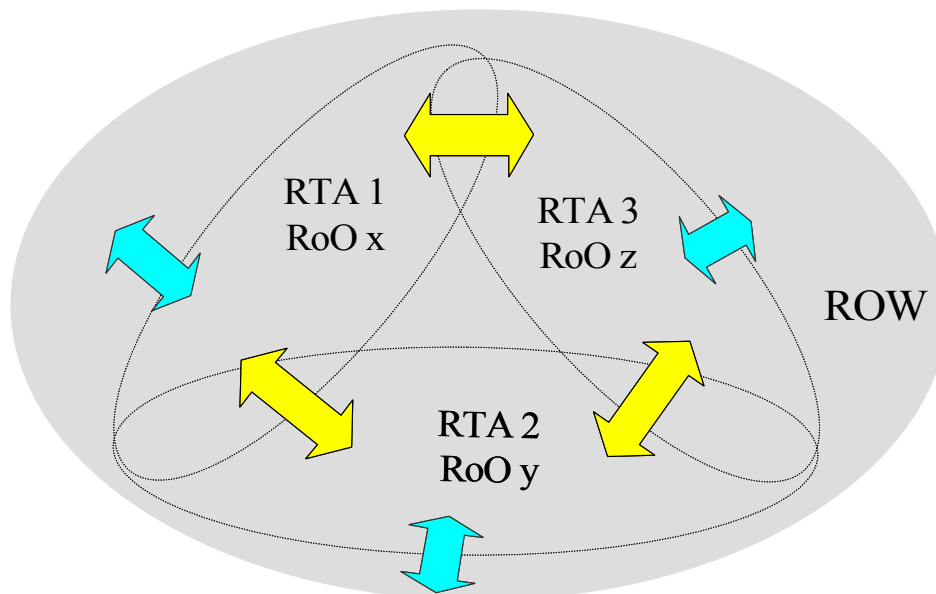


Figure 7b, on the other hand, depicts the same set of RTAs but with lower restrictiveness. In this case the RoO barriers to trade are lower, both across RTAs and between members and RoW. Inputs can be sourced efficiently raising the global gains from trade.

Figure 7b – Divergence with Low Restrictiveness



i) Measuring Divergence

Divergence is due to the different needs of different producers in different cumulation zones, not carelessness in negotiation, but can also be expected to generate costs and uncertainty in practice. How divergent are agreements? We strive to answer this question by comparing RoO regimes to each other product-by-product by using Harris’s (2007) restrictiveness index.

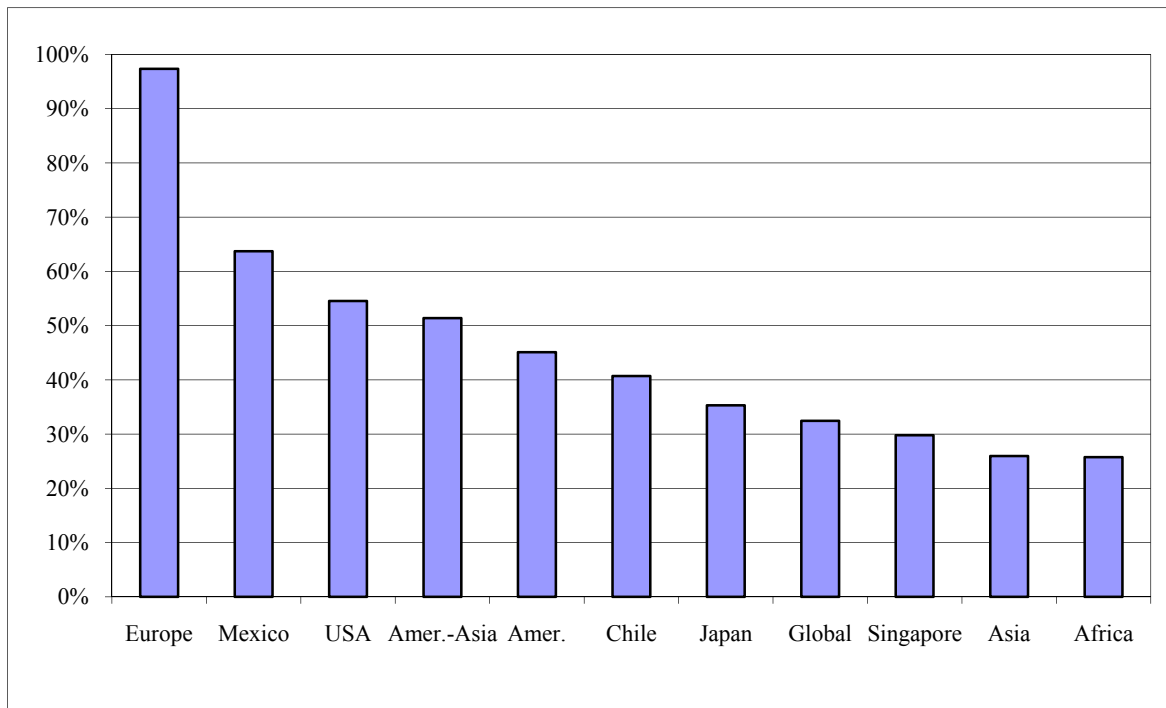
Figure 8 reports the frequency with which the most common rule, i.e. the “mode rule”, for each product within a “family” of agreements is applied across those agreements. For example, if 4 of 5 agreements within a family specify the same rule for product X, then that implies an 80% similarity. The average of this measure across all products is reported in the figure.

In the Paneuro family of agreements on average nearly all of the agreements apply the same rule³³ for a given product. In the US family, on the other hand, just over half of the agreements will apply the same rule for any given product. In the African agreements, in fact, the

³³ By “the same rule” we thus mean “rules with the same level of restrictiveness”, which is not necessarily the same thing. Containing 28 of different measures for RoO restrictiveness, and thus abstracting from the RoO typology (with 211 RoO), the index provides a solid and in our view sufficiently nuanced basis for capturing cross-regime divergences. See Appendix I for a list of agreements included in each group.

25 percent outcome actually implies complete divergence, as there are only four agreements included in the analysis, and their rules never coincide.

Figure 8 - Similarity within Families: Fraction of Agreements in Each Family Sharing the Mode Rule



Source: Authors' Calculations on the basis of RTA texts.

On the other hand, the Americas-Asia family of trans-continental agreements as well as the Mexico family show significant similarities, with over half and nearly two thirds of agreements coinciding on average, respectively. For the full global set of agreements, on average about one third of agreements' rules will coincide on any given product.

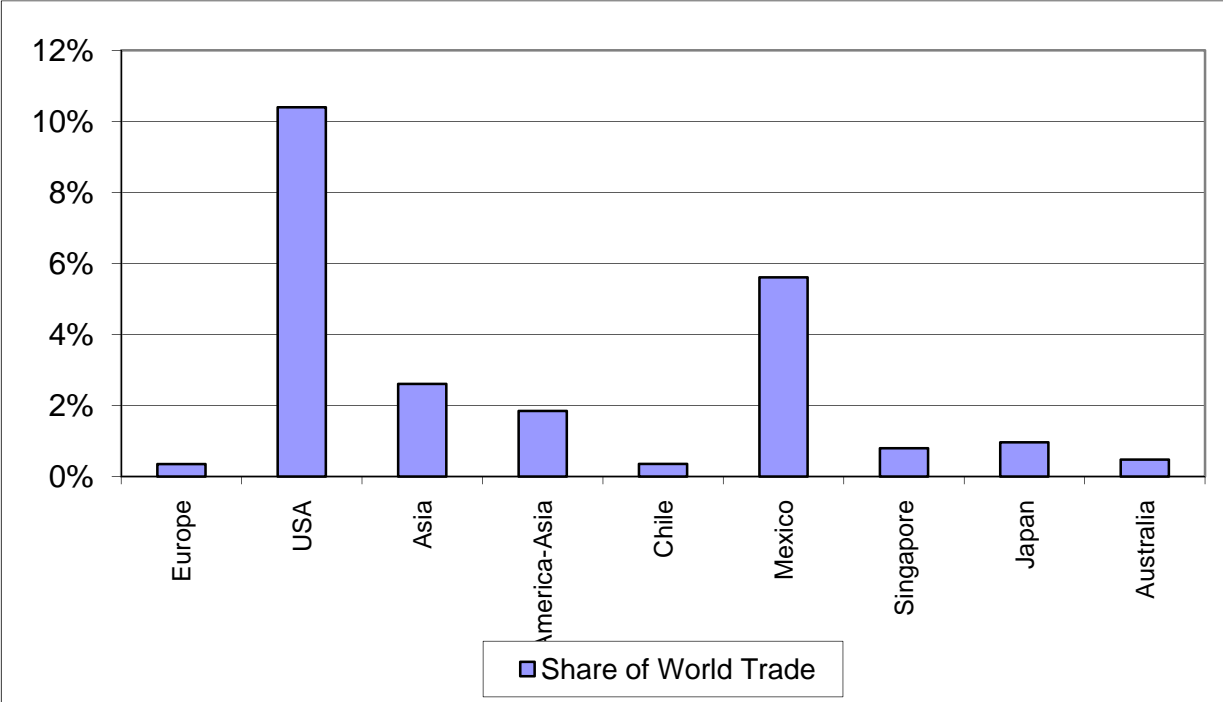
It is fair to point out that for the countries around which these “families” of RTAs are defined, some RTAs are more important than others. For Mexico, approximately two thirds of imports are from the US and nearly 85% if exports are destined for the US³⁴.

Thus, the bulk of Mexico's trade is under a single origin regime. Nonetheless, there is still a third of imports and a sixth of exports that must be administered under MFN and a significant variety of differing origin regimes. Even among agreements with regimes modelled

³⁴ Based on 2004 IMFDOT figures.

on NAFTA, there is meaningful variation of rules. On average 3 of Mexico’s 9 agreements have rules that deviate from the “mode” rule. Among the US’s 12 agreements this fraction is closer to one half. Even if though some RTAs will be more important than others for a given country, except for the uniformity imposed by the EU, firms wishing to take advantage of multiple RTAs will most likely have to confront different rules.

Figure 9 - Share of world trade covered by agreements, by family (2004 data)



Source: Authors’ Calculations based on IMFDOT.

Figure 9 shows the share of world trade covered by the agreements included in each family listed in Figure 8. Intra-European trade is not counted as part of the Europe family, as this trade is not subject to rules of origin in the customs union. The USA and Mexico families both include intra-NAFTA trade.

Table 2 furthers the analysis of rule of origin divergence by showing the number of agreements and the average frequency of the mode rule. It also displays the restrictiveness of the mode rules (a restrictiveness of 6 is equivalent to a change in heading rule or a VC requirement of 50 percent), as well as characterize the average deviations from the mode.

This average deviation from the mode gives an indication as to how these rules are negotiated. In the analysis of the complexity of RoO above we showed that countries tend to have more selective rules when they trade more products and hence have more product-specific interests to satisfy internally. Here, we can see whether satisfying these interests tends to lead to more or less restrictive rules on average.

Divergence from the mode rule within a family in the Chilean, Mexican, and US cases is on average towards less restrictive rules. This is also true for trans-Pacific agreements and in the overall global case, though to a lesser degree. The opposite occurs in the Singapore, Japan, Asia and Americas families. In the case of the Asian, Japanese, and Singaporean families, the relatively low frequency of the mode rules makes generalizations even more difficult. The tendency to deviate upwards here may be due to the fact that these countries often have origin regimes that consist of a fixed rule that applies to all products which is generally fairly lax,³⁵ and apply exceptions to this rule only in cases where additional protection is desired.

Table 2 - Similarity of RoO within Families

	No. Agreements	Average Frequency of mode	Average Restrictiveness of Mode	Average Deviation from Mode
Africa	4	1.0	3.80	-0.02
America-Asia	7	3.6	7.48	-0.15
America	39	17.6	5.43	0.37
Asia	11	2.9	6.47	0.84
Chile	8	3.3	7.29	-0.72
Europe	4	3.9	6.92	0.00
Japan	4	1.4	7.10	0.58
Mexico	9	5.7	8.52	-0.48
Singapore	4	1.2	8.71	0.30
USA	12	6.5	7.63	-0.39
Global	69	22.4	6.27	-0.14

Source: Authors' Calculations on the basis of RTA texts.

While speculation on explanations for these results is likely to lead to some oversimplifications, it is worth offering an informed hypothesis. The US, Mexican, and Chilean agreements generally follow a NAFTA-like model. Furthermore, negotiation of product-level rules in this model can be quite tedious, as anyone who has even tried to read them can imagine.

³⁵ Except Japan-Singapore, where the default rule is effectively a wholly obtained requirement except where otherwise stipulated.

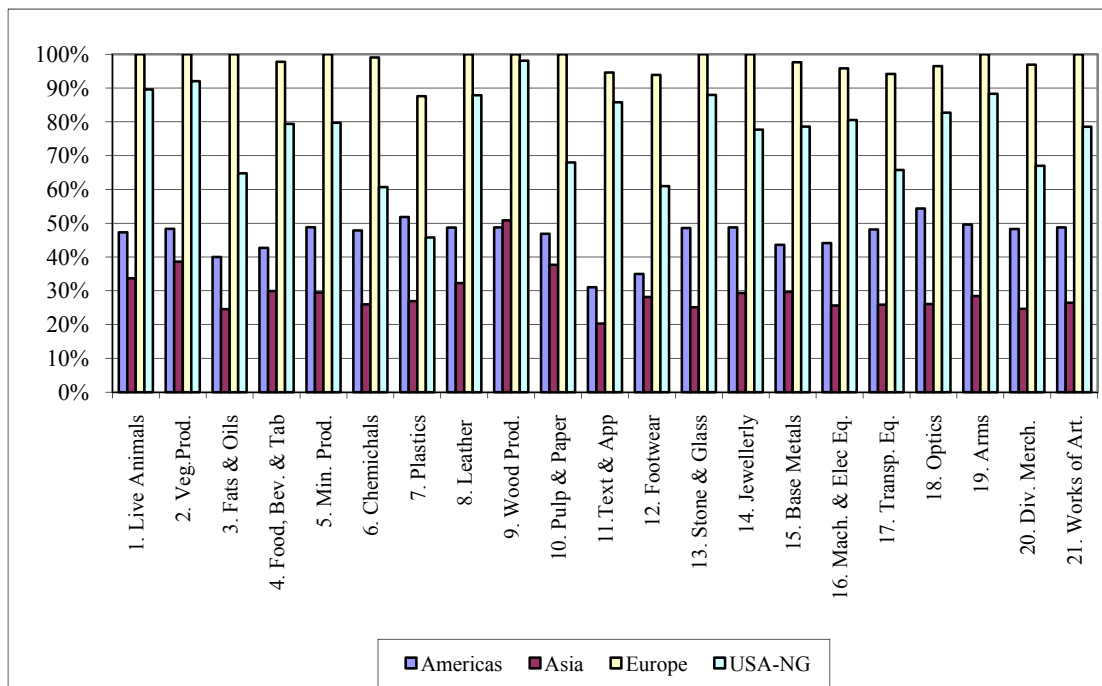
Thus, when negotiating a new agreement, rules for products of no special interest to either party are likely to simply be copied from one or the other party's previous agreements. Deviations from the rules of previous agreements is likely to occur mainly in the cases of products that are of particular interest to one or the other party. What is interesting here is that these deviations are generally towards less restrictive rather than more restrictive rules. While this could be due to the fact that the "default" rules tend to be sufficiently restrictive to begin with, so that no upward deviations are usually necessary, this probably also indicates that in these cases the task of negotiators is geared more to assuring that their exporters will be able to meet the requirements than to seeking extra protection for domestic producers.

ii) Divergence at the Sectoral Level

What sectors drive the average observed divergences and similarities in RoO *within* families? This is a policy-relevant question: the sectors where divergence within the families is least should be the low-hanging fruit for negotiators of any attempts to bridge differences in RoO across regimes.

Figure 10 shows the degree of similarity in RoO within RTA Families of the Americas, Asia, Europe, and United States. The only divergence in the homogeneous European family arises from RoO in plastics (Section 7), textiles and footwear (Sections 11 and 12) and machinery and equipment and transport equipment (Sections 16-18). The "New Generation (NG)" US agreements (i.e. excluding those with Middle Eastern countries with across the board VC rules) are still rather diverse, with 80 percent or more of the US agreements featuring the same RoO in only 8 of the 21 sectors coinciding in the Americas and Asia are even less homogeneous, rarely exceeding 50 percent agreements coinciding on average. Table D-I in Appendix D details these patterns further.

Figure 10 - Similarity by HS Section within RTA Families of the Americas, Asia, Europe, and United States (Percent of Agreements by Family with the Same RoO)



Source: Authors' Calculations on the basis of RTA texts.

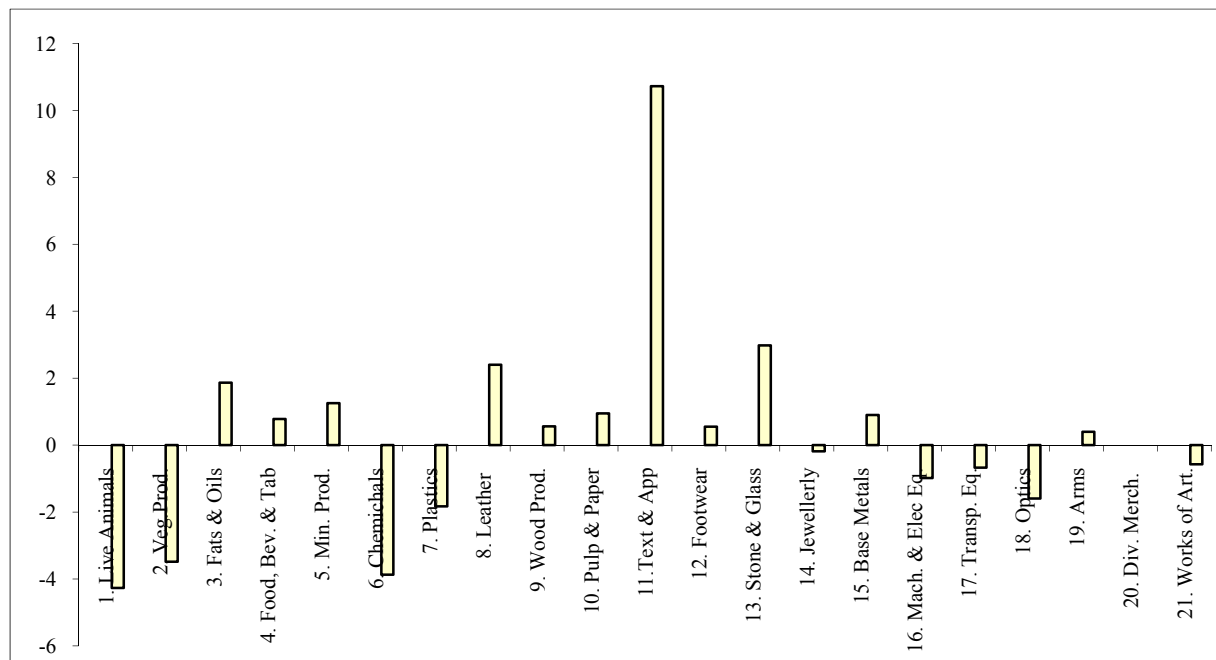
Looking for similarities across families (see Appendix D) we find that generally textiles (Section 11) have the most restrictive rules, though not so much in the case of the European rules, where agricultural products (sections 1-2) have more restrictive rules. Chilean and Japanese families also have restrictiveness peaks in agriculture. In most agreements, restrictiveness is lower in chemical, plastics, and machinery and equipment.

iii) Comparing US, EU, and Non-Preferential RoO

Given that the US and the EU are the two global poles in setting RoO in preferential agreements, they would also hold the keys to any effective multilateral process to tackle RoO. In principle, the more similar their RoO regimes are, the more likely would they be to find common ground in any RoO negotiation.

How divergent are US and EU RoO? Figure 11 compares the most common rule for each product within the set of US agreements with the rule for that product in the Paneuro RoO.

Figure 11 – Comparing US and EU RoO Section, Average Restrictiveness US-EU (Harris 2007)



Source: Authors' Calculations on the basis of RTA texts.

The overall average levels of restrictiveness of these two sets of rules are quite similar (a difference of less than 0.15 using the Harris [2007] scale). This overall average, however, masks some significant differences in certain sectors (indeed the standard deviation of the difference across all products is 5.5).

At the HS Section level, the differences that stand out are in basic animal and vegetable products (1 and 2), animal and vegetable oils (3), chemical products (6), furs and hides (8), wood and paper (10), textile products (11), stone and its manufactures (13), common metals (15), and precision instruments (18).

The most dramatic of these differences in live animals (1), vegetable products (2), and textiles and apparel (11) are perhaps overstated by the comparison methodology, as the EU relies heavily in sections 1 and 2 on a “wholly obtained” criteria while the US applies rules based on the change of classification criteria that for these products in fact give a similar effect. In textile products, the differences are somewhat overstated again due to differences in approach to defining the rules, with the US again relying on CTC criteria and the EU relying on specifying production processes. In this case the differences boil down to the US requiring that material

inputs be originating starting with yarn, whereas the EU generally requires that material inputs be originating starting with fabric.

Of the other HS Sections, ten out of the 21 show a difference of less than one point (equivalent to the difference between an exception to a CTC of a heading and an exception of a subheading).

Despite recognizing that the differences in some sectors are somewhat overstated due to “stylistic” differences in definition of the rules, we must also emphasize the importance of stylistic differences. Agreement of the substance of a matter does not always lead easily to agreement on the particulars of implementation. The fact that the average difference in 10 of the 21 HS Sections is less than one point on the Harris scale, while encouraging in that differences may not be as large as one might think, does not imply that reaching an agreement would necessarily be simple. Recall for example Figure 1, which shows that the most recent approved US agreement (CAFTA) relies on criteria other than CTC for less than three percent of products in their first rule, where the Paneuro rules eschew CTC for nearly 15 percent of products. Even if the observed restrictiveness is quite similar in many cases, these stylistic differences, which derive from fundamentally different understandings of the best way to approach these issues, are significant.

Another potentially useful analysis is comparing the US and EU preferential RoO families, respectively, to the non-preferential RoO as they stand to date (See figure D-1 in the appendix). While the non-preferential rules generally seem to be a compromise position between the US and EU standard preferential positions, there are several sections where this is not the case. There are seven sections where the non-preferential rules are more demanding than either the standard US or EU preferential rules, most notably food and beverages, mineral products, transportation equipment, and arms. There are also four sections where the non-preferential rules are less demanding than either of these, most meaningfully in plastics, jewellery, base metals, and machinery and equipment.

It is important to keep in mind that the ostensible³⁶ purpose of non-preferential rules is different from that of preferential rules. While preferential rules must simply allow a

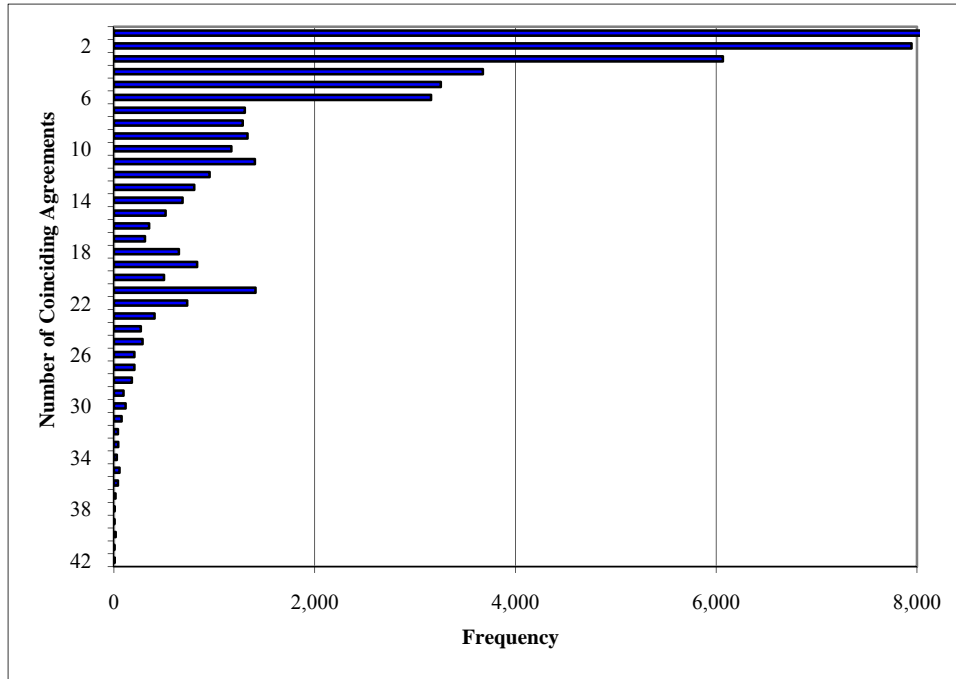
³⁶ An important outstanding issue in the negotiations of harmonized non-preferential rules is the exact uses to which the agreed rules will be put.

determination of whether a good is originating in an RTA member or not, the non-preferential rules must allow a determination of the “official” originating country when this is not the country of export. These differing purposes may be the cause of the deviations noted above.

iv. Beyond Geographic Families?

The above exercises studied RoO hubs and families *ex ante* defined. One could certainly ask whether there are sets of RTAs that frequently coincide in their origin requirements despite not falling in the same families—that is, whether there are families across the geographical families examined above. Such an exercise could help identify “global RoO coalitions”, or clusters of RTAs sporting common product-specific RoO. In essence, it would help illustrate the divergence within the global bar in figure 8. Figure 12 strives to get at such global families by looking at the frequency with which different numbers of agreements coincide across product.

Figure 12 - Frequencies of Coinciding Agreements



Source: Authors' Calculations on the basis of RTA texts.

Unsurprisingly, we find that there are no large unexpected coalitions. The peak at 21 coinciding agreements is due to the large group of agreements in South America that follow the LAIA model with a general rule that gives the alternative of a change in heading or a 50 percent VC.

An alternative approach to this question is to look at which agreements coincide in each product and examine the frequency of these coincidences. Table D-II in Appendix II lists the “revealed families” with frequencies in excess of 200 products. Again, there are no particular surprises. The highest-frequency outcome is for agreements to appear alone. Common groupings are of agreements with across the board low-percentage VC requirements (for examples ASEAN, Chile-China, and US-Middle Eastern agreements). We also frequently see groupings within the families used above.

However, even if unexpected families were to emerge from this analysis, this exercise is likely of more academic than practical interest. For one, RTAs within a group with, say, 200 common RoO may be fully divergent in the rest of the RoO in the tariff universe—while, in

addition, any one of them may coinciding in a larger number of RoO with even a larger number of RTAs. A second and a complementary issue is that if rules are a function of local political and economic factors, any of the members to RTAs in the global RoO clusters may have but a scant motive to work together.³⁷

Perhaps the most useful lesson of the exercise is that there are virtually no large global coalitions of RTAs outside the expected families. Nonetheless, in the presence of global “RoO caps” that would limit the number of types of RoO, the number of RTAs with a common RoO should expand.

4.4 Restrictiveness and Divergence in Sum

In sum, the above exercises have yielded three main observations:

- RoO in EU, Mexican, Chilean, US, and some Asian agreements, most notably the Japan-Singapore FTA, are among the most restrictive. Agricultural products and textiles and apparel are marked by a particularly high restrictiveness score across regimes. However, it is also the case that US agreements have become less restrictive over time. The more recent intra-Asian agreements tend to be less restrictive and complex than their counterparts in Europe and the Americas.
- The real, effective restrictiveness depends on factors beyond the RoO regime text, namely on the input pool and the geographical pool of supplies. The wider these are, the less the effective restrictiveness is likely to be.
- There are marked divergences across RoO regimes around the world: on average about one third of all agreements’ rules will coincide on any given product. Nonetheless, there are clear RoO families centred around the United States, EU, and Mexico, in particular, which suggests potential for some form of regional RoO convergence. Moreover, there are some signs of a *de facto* cross-regional stylistic harmonization of RoO, as US-style agreements are spreading toward Asia via the recent trans-Pacific agreements.

³⁷ Furthermore, the exercise here employs not RoO typology but the restrictiveness index, which is an aggregation of the typology, and, as such, overlooks differences in RoO types falling into a particular restrictiveness code. For instance, a restrictiveness value of 10 carries 14 different types of RoO, and thus any one of the RTAs sharing restrictiveness value of 10 in any one RoO may still have divergent RoO types.

5 Multilateralisation and Convergence: Where, When, and How?

Rules of origin are a necessary element of any preferential trading scheme. Indeed, “preferential” and “RoO” go hand-in-hand: by precluding free-riding, the latter enables the former. Taking as given that RTAs, either individually or collectively, can fuel and further the multilateral trading system, it must be recognized that they could not have been agreed to without origin regimes that to a sufficient degree limited the benefits of each agreement to its constituent members. As such, discussion of “eliminating” rules of origin from preferential trading arrangements is nonsense.

Furthermore, if we accept the “building block” hypothesis that successive and overlapping RTAs are the most viable path to global free trade, then the elimination of preferential origin regimes would itself be a stumbling block. After all, under the building block hypothesis, preferential origin regimes are *the* mechanisms that make RTAs viable by allowing the participating countries to focus on eliminating intra-regional trade barriers without concerns about inadvertently undertaking a broad unilateral liberalization.

We have shown that restrictive and divergent RoO are facts in the RTA universe. We have also discussed the reasons why restrictiveness accentuates the importance of divergence, and described the potential transaction costs ensuing from the restrictiveness-divergence combination. While RoO *per se* in any given agreement RoO are not necessarily “bad” for sound economic decisions, restrictive RoO can be. This has been shown to hold empirically. Furthermore, at least in theory, differences *between* RoO regimes can make a difference in the decisions of economic actors in favour of less efficient outsourcing and investment strategies even in a simplified bi- or tripolar RoO world. How, then, to tame the RoO tangle?

One way to relegate RoO to irrelevance—and, indeed, to bring about the same effects as by multilateralising regionalism—is by bringing MFN tariffs to zero globally. However, since this option is unlikely in the near future, there are four further options. The first doing nothing: *status quo* RTA proliferation and a likely *de facto* bipolarisation of the global RoO world map into regimes following the US and EU RoO models, respectively—and with many countries sporting both, à la Chile and Mexico. This option does nothing to alleviate the problems with the RoO discussed this far. The second and third are multilateralisation and convergence. A fourth option is a combination of these two. We discuss the latter three options in turn.

5.1 Multilateralising Preferential Rules of Origin

Full harmonisation of preferential RoO would be as politically unfeasible as it would be technically unpalatable to producers around the world. While the technical process of harmonisation could be hampered by the often marked differences in RoO across regimes, even the more subtle differences could be difficult to overcome due to political resistance by sectors benefiting from the *status quo*. Meanwhile, it is unlikely that an industry lobby would materialise to voice demands for harmonisation. Perhaps most importantly, both the EU and the United States would likely be reluctant to adopt each other's RoO. Both would likely also be concerned of the other's striving for RoO that would allow it to tranship via the parties' common RTA partners, such as Mexico.

Moreover, harmonisation could be harmful in that it could accentuate restrictiveness and thus force rules on RTAs that prohibit the use of non-originating materials that do not exist within the RTA cumulation zone. This would effectively cancel liberalisation of the affected products in that RTA since effective restrictiveness depends not only on observed restrictiveness but also on the size of the cumulation zone. In short, harmonisation can be straitjacketing.

A better option than harmonising is, then, multilateralising preferential RoO. Multilateralising is different from harmonising, and here refers to the establishment of multilateral disciplines on preferential rules within the WTO framework that will set some limits on the restrictiveness and complexity of rules of origin in preferential agreements. Such a “RoO cap”, perhaps best conceived of as a limited range of potential RoO options (which would truncate the existing vast repertoire of RoO combinations displayed in figure 2), would ensure that at least the qualifying production methods in a given sector remained relatively similar across export markets. While such a cap would likely have to be set relatively high in order to accommodate the various pre-set RoO in RTAs, it could serve as a useful reference point in the same way as the benchmark rules discussed below.

A complementary approach could be for RTAs to agree to “bind” their rules of origin at existing levels of restrictiveness and then negotiate reductions of these bindings under future negotiations. Importantly, this kind of a capping process ought to be couched in a principle of “common flexibilisation”: multilateralisation of RoO, like of other disciplines, should not result in increased restrictiveness of RoO—and thus potentially harming trade as well as violating

GATT Article XXIV— but preferably drive at loosening both observable and, by extension, effective restrictiveness of RoO.

There are various ways to conceive of the technical process of multilateralising RoO. For example, once agreement is reached on harmonisation of the non-preferential rules of origin, these could be taken as a benchmark. Then some mechanism could be employed for quantifying the net deviation each agreement’s preferential rules of origin from this benchmark, perhaps using some variant of the indices employed in this paper.

RTA member countries would then be assigned the task of ensuring that their rules of origin produce a net deviation from the non-preferential benchmark or cap by an agreed amount. Having established this target reduction of net deviation, the member countries of each agreement would be free to negotiate modifications to their rules of origin to meet the target in a way that is mutually acceptable and that respects the availability of inputs within their respective cumulation zones. Note again that this mechanism does not aim at harmonizing rules *per se*, but, rather, at reducing the restrictiveness of the rules of origin relative to a fixed benchmark, and thus achieving a greater openness of each bloc to the rest of the world. As blocs become more open to inputs from RoW, the distortionary effects of the RoO would be reduced.

By using the net deviation, agreements could compensate for rules that are more restrictive than the benchmark on some products with rules that are less restrictive than the benchmark on other products (note that the concept here is the observed restrictiveness, not effective restrictiveness). It would also make sense, perhaps, to weigh deviations from the benchmark by the average external tariff of the countries party to the agreement, as more restrictive rules distort more in more protected sectors.

A further technical fix might be to attack the general RoO instead of the product specific RoO. For instance, increasing *de minimis* and/or creating innovative cumulation-like methods in RTAs around the world as is done in Singapore’s FTAs. These methods could make RoO non-binding (non-restrictive), thus obliterating the relevance of divergence, as well.

Besides the technical “what” of multilateralisation, there are the political “how’s” and “who’s” of the process toward multilateralisation. The first step might be the launching of a global mechanism—perhaps a technical group of RoO experts—that monitors and catalogues preferential RoO and reports to WTO members on the existing rules. Alternatively, the task could be accomplished by an existing WTO venue, such as under the auspices of the Committee

on Regional Trade Agreements, although this might be more time-consuming. The technical group could also serve as a forum for consultations wherein countries and/or companies could communicate their concerns of being excessively restricted by RoO, and/or excluded from markets by RoO. As a starting point, this could bring increased transparency to RoO by giving countries excluded from RTAs a (non-binding) voice on the issue, while also helping to gauge the relevance of multilateralising RoO to companies and the potential designs of such multilateralised RoO.

Another potential institutional mechanism for addressing RoO would be through the Transparency Mechanism on RTAs approved by the WTO General Council in December 2006, which mandates that the “WTO Secretariat, on its own responsibility and in full consultation with the parties, shall prepare a factual presentation of the [notified] RTA.”³⁸ The mechanism entails that RTAs be subject to similar, albeit much lighter, examination by the WTO as national trade policies are in the context of the Trade Policy Review Mechanism (TPRM). While this function of the WTO has no enforcement capacity, a rigorous and objective review of preferential RoO in the factual presentation of the RTA would bring added transparency to these policies.

Who should join the multilateralisation process? RTAs have evolved from intra-regionalism to trans-continentalism, engaging some rather unlikely partners such as Chile and Korea or Mexico and Israel. This trend is far from abating; given that RTAs are increasingly trans-continental in nature and that all countries but one, Mongolia, are RTA members, effective multilateralisation would seem to require all WTO members to step up to the plate and on equal terms: everyone should play and with a level playing field. Indeed, the drive toward less restrictive RoO inherent in a multilateralisation should be acceptable to developing countries: various RoO regimes provide developing countries more flexibility to fulfil their RoO requirements than is afforded to the more developed country members.³⁹ Developing countries are thus likely to gain from these regulations, as any of the above mechanisms would likely have relatively little effect on their RoO, whereas reductions in the restrictiveness of developed country RTA rules would provide openings to their products. Moreover, it would also be immensely useful to include RoO end-users, that is, private sector actors, from the beginning in

³⁸ See <http://docsonline.wto.org/DDFDocuments/t/WT/L/671.doc>.

³⁹ See Suominen (2004) and Suominen (2005).

the process, perhaps as a consultative committee. Indeed, if globalized industries bought into the idea, they would help build political support for the negotiation and implementation of any outcome.

Getting the process moving toward actual multilateralisation as understood here is a broader challenge. One major challenge is that the train has left the station. Revising the manifold existing RoO regimes would generally require re-submitting RTAs for legislative approval and thus be politically unpalatable in many capitals. One way to overcome the need to reopen product-specific RoO could thus be a variable geometry approach—a simple capping process, such a commitment to increase *de minimis*, in the existing regimes, accompanied by a cap for the product-specific RoO in the forthcoming RTAs. An alternative (or complementary) mechanism might be to adopt two optional (capped) RoO for any given product, much like is done in EU, US, and several other countries' RoO regimes . This would help accommodate the entrenched RoO regimes and help push the process forward.

To be sure, one facilitator of multilateralisation could be an external shock, such as a push toward RoO convergence in a major world region, such as Asia or the Americas, as this might hasten non-regional parties to the multilateralisation table. Overall, the process should be much more streamlined than that of harmonising non-preferential RoO, a process that has dragged on for more than a dozen years.

What would multilateralising mean to Article XXIV? As formulated here, multilateralisation does not appear to necessitate a revision of the Article, but, rather, some independent agreement among the WTO members. Regardless of the method, the process of multilateralising RoO could have positive externalities at the bilateral and national levels. Rules of origin are not regularly renegotiated for a variety of good reasons (predictability and stability of the trading rules) and bad reasons (inertia, negotiation costs, externalities, information gaps and asymmetries). One benefit of establishing negotiations to govern preferential rules is that it would generate an opportunity to open such negotiations, thus overcoming the negotiation inertia, and creating technical awareness of the negative aspects of restrictive RoO. This objective could be made explicit by establishing mandatory review mechanisms where RTAs would have to revisit their RoO every 5-10 years. In the context of Baldwin's (2006) "juggernaut effect", such an iterative renegotiation is likely to result in falling levels of protection, in this case, less restrictive rules of origin in regional trade agreements.

5.2 Convergence

The second path to taming the RoO tangle is convergence. Before entering into what is implied by convergence, it is helpful to first discuss what it is not. Simply harmonizing rules of origin across RTAs is not “convergence”, and in fact would not even necessarily be particularly helpful. Recalling that RoO are in part determined by the availability of inputs within the relevant cumulation zone, the imposition of a standardized set of rules would likely result in *increasing* the restrictiveness, both observed and effective, of some rules in some RTAs—which would be counter-productive.

Furthermore, having similar rules would not, of itself, actually result in more openness, except where the harmonization process resulted in rules moving to lower observed restrictiveness. This is because without changing the borders of the cumulation zone(s), there would be little gain in market access.

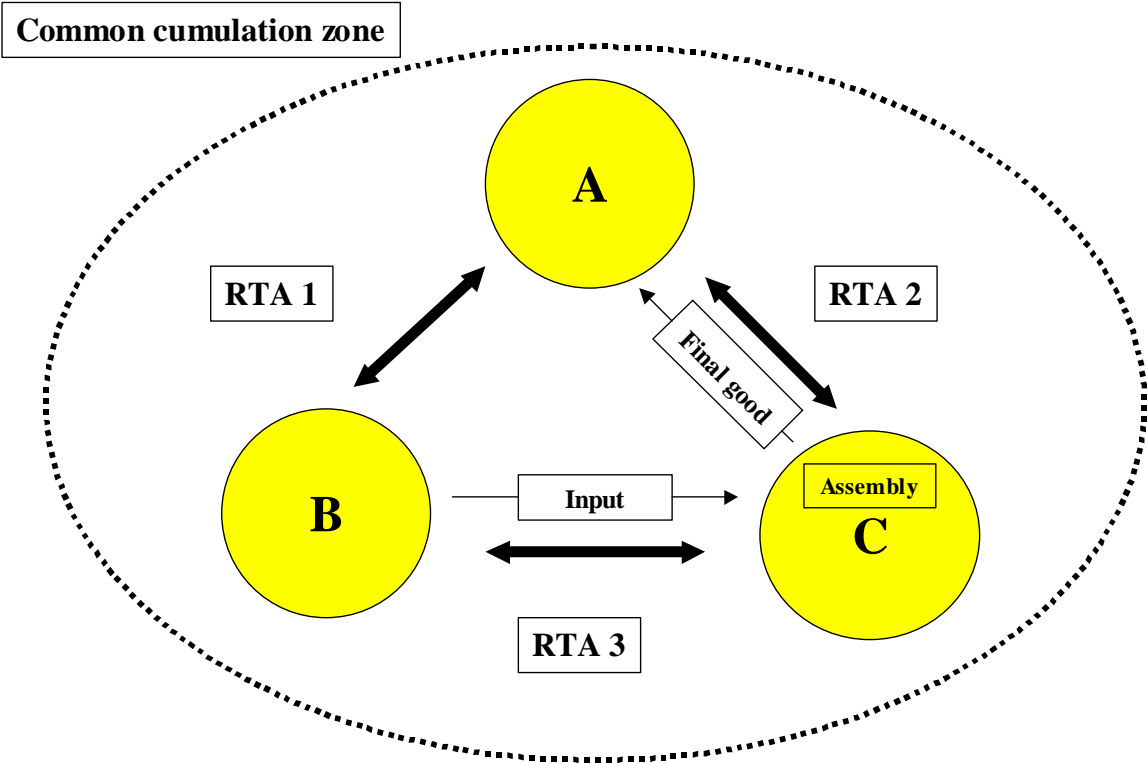
What convergence would have to mean, then, is the unification of multiple overlapping existing RTAs into a single cumulation zone with a new, single list of rules of origin⁴⁰. One such process was the creation of the Paneuro system in Europe; however, as noted above, the process involved harmonizing and connecting RoO regimes that were already very similar if not fully alike in many instances. In a more diverse context, convergence would require multi-party negotiation of a new list, as well as negotiation of tariff elimination for any bilateral relationship where it has not be established by an existing RTA. The latter is important as cumulation would not be viable if there are residual tariffs on either the final good or the inputs to be cumulated in any of the countries in which these originate: such differences could lead to distortions of trade and production patterns, with trade likely flowing through the lowest-tariff channels and production agglomerating in the hub country that faces lowest tariffs in the other participating countries. In a simple example in figure 13, then, convergence would enable C to import inputs free of duty from B under the B-C RTA, use the inputs for final goods destined to A’s market under the A-C RTA all governed by the new, mutually agreed, single list of RoO.

When seeking to encourage harmonisation (or, for that matter, multilateralisation) of RoO, it is important to be aware that a rule that establishes the exact same requirement in two different RTAs can have dramatically different effects on firms’ cost structures in the different contexts given the differences in scale and efficiency of production of inputs within the

⁴⁰ See Cornejo and Harris (2007) and IADB (2007) for a detailed treatment.

geographic and input pools. As such, while the analysis of RoO divergence is important in that it highlights the degree to which any kind of coordination is absent from the development of this discipline, the fact that rules differ across RTAs does not mean that they are necessarily sub-optimal in any particular case.

Figure 13 – Three-RTA Cumulation Zone



In practice, initial interest in expanded cumulation is implicit in recent US agreements (chapter 62 provisions in CAFTA, for example). Though their agenda is still vague, the Pacific Basin Forum of 11 countries in Latin America has formed a work agenda to study, among other things, trade convergence and integration.⁴¹ EU’s new RTAs will likely carry the Paneuro rules, expanding the uniformity conducive to expanded cumulation. Finally, the growing discussion on a Free Trade Area of the Asia-Pacific (FTAAP) might entail some form of convergence rather than a full-blown mega-regional negotiation.

⁴¹ See [http://www.rree.gob.pe/portal/enlaces.nsf/3f08cf720c1dbf4805256de20052913d/e0380a5ecc82f6800525733f0077e87e/\\$FILE/Declaracion_de_Lima.pdf](http://www.rree.gob.pe/portal/enlaces.nsf/3f08cf720c1dbf4805256de20052913d/e0380a5ecc82f6800525733f0077e87e/$FILE/Declaracion_de_Lima.pdf) and [http://www.rree.gob.pe/portal/enlaces.nsf/3f08cf720c1dbf4805256de20052913d/608d2fa8bc449f260525733f007806df/\\$FILE/Programa_Trabajo.pdf](http://www.rree.gob.pe/portal/enlaces.nsf/3f08cf720c1dbf4805256de20052913d/608d2fa8bc449f260525733f007806df/$FILE/Programa_Trabajo.pdf).

However, bridging RoO regimes is bound to be complex and would require at least five considerations.

First, what should be the country and sectoral coverage of a negotiation aimed at a common regime? Obviously, for any one country, the decision to join such a negotiation is ultimately a political one, but a number of factors can make such a negotiation more useful. These include an existing set of RTAs that cover the majority of the bilateral relationships within a given group of countries, and a similar trade policy strategy among these countries. To be sure, there can be a tipping point effect produced either by a major economy joining or launching such a process or by a sheer cascading in numbers of participants, when the pay-offs of remaining outside could turn very negative.⁴²

Second and fundamentally important, what exact format should the common RoO regime take so as to be agreeable to all countries, *and* not to jeopardize the existing degree of liberalization in a region?⁴³ While in this paper we do not address questions of whether CTC rules are preferable to VC rules, or whether self-certification is preferable to public certification, these questions remain important, and worthy of further study, especially at the empirical level, before any new regional (or global) standard is set⁴⁴.

Third, how would a new common origin regime relate to the existing bi- and plurilateral regimes? Would it replace the existing origin regimes altogether, or would it coexist with them? Under the former model, traders would be able to use the common regime only; under the latter, they could choose between the common regime (and reap the benefits of cumulation) or the existing bi- or plurilateral RoO (and forego cumulation). In the pasta metaphor, the individual spaghetti strands of the RTAs would continue to exist, but would be covered also by a large flat piece of lasagne of the convergent origin regime.

⁴² i.e. the “Domino Effect” of Baldwin (2006).

⁴³ Restrictive and complex RoO regimes have been shown to undercut RTAs’ liberalizing the potential. See Suominen (2004), Estevadeordal and Suominen (2006), and Cadot and de Melo (2007).

⁴⁴ Gasiorek et. al. (in this volume) propose a reform mechanism composed of Value Added tariffs, VC RoO, and full cumulation that would allow for better access for developing country exports to developed countries. The value added tariff here is the key, as it levies the tariff only on the non-originating components of the final good. These ideas are very useful, especially for GSP type preferences where the primary objective is to foment development of export industries in the developing country. This mechanism could also serve as an add-on to the more standard determination of origin, which is very binary. Generally, when a good is found to be non-originating there is no preference granted at all, regardless of the fact that there may be significant originating content, though insufficient for the rule. The proposed mechanism would then allow something of a sliding scale of preference that would allow some but not full tariff elimination for such goods, thus promoting the development of production capacity in these countries.

Fourth and critically, how would a common regime interface with extra-regional RTAs? A rapidly growing share of the RTAs formed by countries is with extra-regional partners. Most countries should thus have an interest in a common regime that is both compatible with the extra-regional RTAs, and amenable to trading with extra-regional partners, rather than sealing them off from a given region.⁴⁵ And surely all extra-regional players have an interest in continuing to see their market access expand rather than be cut off in these new over-arching agreements. This situation would be helped by globally agreed guidelines for preferential RoO.

Fifth, who would do the talking? While governments are necessary for forming and redefining international agreements, considerations of cumulation, as those of multilateralising, call for private sector participation, not least given that they are the end users of RTAs and thus hold the best information about the operation of RTAs and the relevance of the hypothetical problems posed by the RTA spaghetti bowl. Indeed, these are the actors responsible for the unbundling of production that leads to the political feasibility of such endeavours in the first place. As such, any process aimed at bridging RTAs should inherently involve public-private sector partnerships.

Sixth, what is the role of the multilateral trading system (and WTO) in such a process? One of a dispassionate or impotent observer, or a player in the process? This is a question we turn to next.

5.3 Multilateralism-cum-Convergence: A “Cap-Con” Strategy

The issue of sequencing of multilateralisation and convergence is crucial, should the two concepts mean what they refer to in this paper—“capping” RoO at the multilateral level while establishing single RoO regimes at the regional (or some other group/family) levels to permit the formation of larger cumulation zones. Recall that Figure 5 illustrates the natural theoretical tendency for larger cumulation zones to negotiate rules of origin with higher observed restrictiveness. Granted, any expansion of the US or EU zones would imply only marginal proportional increases in the size of the cumulation zones⁴⁶, and thus in the degree to which the rules are likely to become more restrictive. However other regions, such as grouping within Latin America (Pacific Basin Forum), Asia (ASEAN+6), or Africa, should they follow convergence paths, would be well advised to take care to resist pressures to establish more restrictive rules

⁴⁵ For a mapping of RoO in RTAs around the world, see IADB (2006) and Estevadeordal and Suominen (2006a).

⁴⁶ Adding all of South America to North America, or all of Africa to the EU, would not represent a very large shift to the right in Figure 4.

than those prevailing in their existing regimes. Although any multilateral “cap” is unlikely to bind on such arrangements, as it would have to be agreed by the larger players as well, the existence of such a reference point could aid in efforts to restrain protectionist tendencies in the negotiation of the new origin regime.

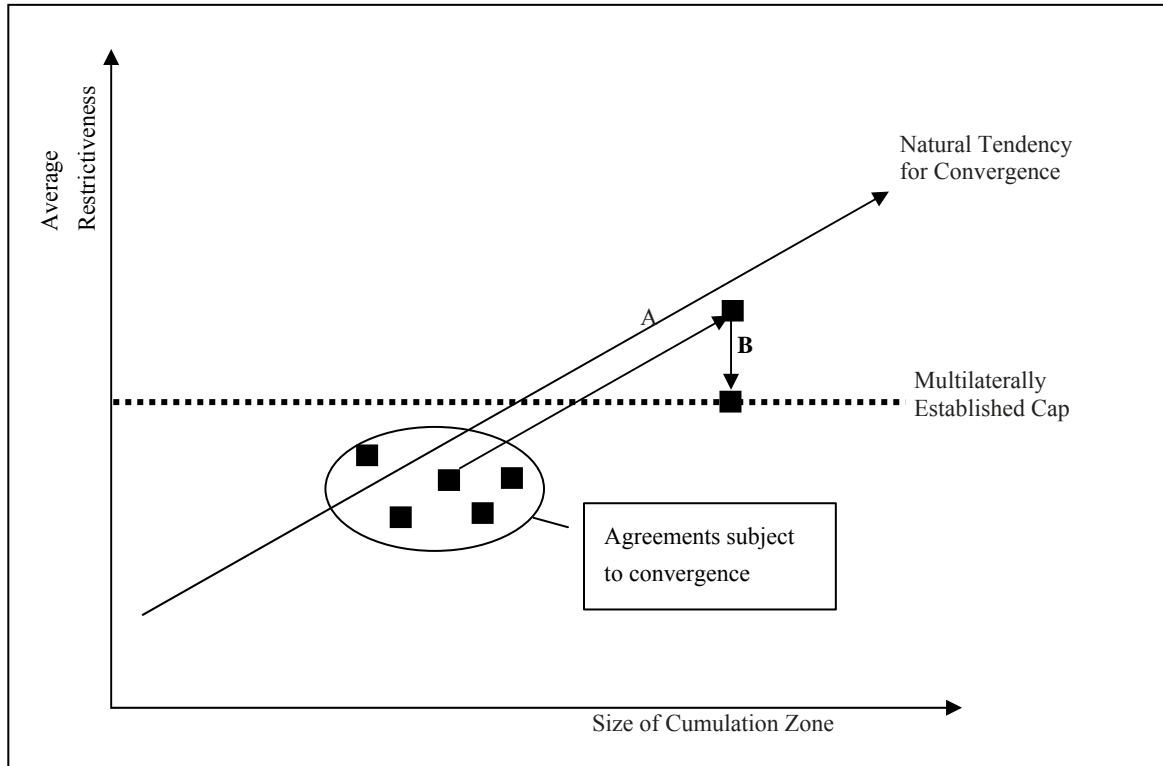
Moreover, the argument assumes away (1) on-going MFN tariff liberalization among the members; (2) potential RoO loosening by some members or a major member (as per the NAFTA relaxation of RoO); and (3) and related, the rise of an export lobby amid a convergence process to push for decreasingly restrictive RoO. Indeed, that such a process could be launched at all would likely suggest the consolidation of the globalised industry lobbies (and weakening of the import-protecting industries)—while of course not precluding stepped-up efforts of protectionist lobbies aiming at expanding rent-seeking opportunities upon the convergence talks.

In any case, expansion of the RoO zone could lead to greater complexity. Moreover, to the extent that countries wish to pursue convergence that also leads to more liberal global trade, it could be important to first, at the minimum as insurance policy against the theoretical rise in restrictiveness, have in place some global guidelines for (the convergent) preferential RoO. Such guidelines would simply serve to counteract the theoretical tendency of larger cumulation zones to create complex RoO and to erect higher barriers to extra-zone inputs, and thus entail a simultaneous global capping and regional convergence processes.⁴⁷ This could be termed as a “cap-and-con strategy.” The strategy is based on a notion that global “capping” of RoO is useful so as to not “converge” into trade-diverting megablocs.

The proposed optimal outcome can be shown in Figure 14. The countries party to a group of overlapping RTAs decide to establish a convergent origin regime that will allow cumulation among all of them under a newly negotiated set of rules of origin. This new origin regime risks moving them up line A following the natural tendency for larger grouping towards more complex and restrictive regimes. In the presence of multilaterally agreed guidelines (a cap), this movement would be counteracted with a move down line B.

⁴⁷ Note that the argument presented earlier that the effective restrictiveness of such rules is lower in larger blocs applies to the effects that rules have on the production costs of members, as the globally low-cost producer is more likely to be included within the cumulation zone as it becomes larger. This attenuating effect is of no help to suppliers left outside the expanded cumulation zone, and it is this distortion that we seek to minimize through multilateral rules governing preferential origin regimes.

Figure 14 - Effects of “Cap-and-Con”



Whether the guidelines would serve to promote one type of criteria over another (CTC over VC or *vice versa*, for example) is a distinct question from whether such guidelines function to limit the erection of new barriers to global trade. As discussed above, it is preferable that the limitations be imposed on some aggregate calculus and not product by product, as flexibility at this level would be indispensable for political economy reasons within each convergent group.

The important danger to keep in mind when establishing global caps, however, is that they must be set in such a way as to avoid reducing the incentive for convergence. Bringing groups of countries with multiple, overlapping RTAs into a single cumulation zone has the potential to greatly increase trade, especially among those that might be considered spokes, as well as to create trade as long as the zone in question were grounded on open regionalism. As such, convergence of the right, non-restrictive kind should be encouraged not stifled. The wrong type of convergence—one that produces trade-diverting megablocs that would silo global commerce, and something that cap-and-con is to pre-empt—should be opposed with the most

stringents of terms.⁴⁸ While the reduction of the restrictiveness of these rules may have minimal effect on intra-RTA trade, the lowering of barriers could increase openness to producers of intermediates in excluded countries.

While optimally some global capping would happen before the convergence processes begin, that horse seems to have already left the barn, as evinced by the current policy debates on some regional bridging of RTAs in the Americas and Asia and the EU's entrenched Paneuro regime. The Paneuro architecture implies that all EU's new RTAs will have the potential to continue the expansion of that cumulation zone, though at least in that case the prospect for the increasing restrictiveness of the rules is reduced as these agreements tend to carry identical rules to the previous agreements.

5.4 Where Are We Headed?

Having described what we consider to be the optimal path for both regional and multilateral treatment of rules of origin, let us step back and reengage with reality. Optimal is one thing, but what is likely? We see five potential scenarios, summarized in Table 3.

The first potential scenario is one where nothing changes. Countries continue to negotiate RTAs bilaterally or in small groups, with no convergence of origin regimes and no rules established at a global level to regulate the origin regimes of current or future RTAs. This is a “worst case scenario”, where many small, overlapping RTAs channel preferential trade in narrow paths that prevent many producers from sourcing inputs efficiently, and prevent others from producing at all as no cumulable inputs are available.

The second possible scenario is one of convergence, whereby groups of countries with overlapping RTAs begin to negotiate convergent origin regimes, but absent any multilateral guidelines that would limit the theoretical natural tendency of larger cumulation zones to apply more restrictive rules. The gains to be had from allowing expanded cumulation within these groups of countries are likely to be quite significant⁴⁹. However, these groupings could, at least in theory, accentuate the observed restrictiveness, hurting suppliers in excluded countries.

⁴⁸ Krugman (1993) finds that the globally most sub-optimal trade bloc formation would be the rise of three megablocs. That extreme scenario is not likely in its theoretical form, as there are already many trans-bloc RTAs that would make Krugman's megablocs quite “leaky”.

⁴⁹ Gasiorek et.al. (2007) estimate that the implementation of the PECS increased spoke-spoke trade by between 14% and 72%.

The third possible scenario is one where multilateralisation of preferential rules occurs, but there is little convergence of existing regimes. This is somewhat better than the “worst case scenario” above, but would still exclude the gains to be had from expanding cumulation.

The fourth potential scenario to consider is the “cap-and-con” outcome we describe in the previous section, where regional convergence is accompanied by multilateral limitations on rules of origin. This would capture the benefits of both expanded cumulation and relatively less restrictive RoO.

The final relevant scenario is where there is successful multilateral tariff liberalization. The conclusion of a round of tariff reductions that results in the binding of MFN tariffs at zero or very low levels for nearly all products would make all preferential origin regimes irrelevant, as there would be no meaningful tariff preferences to qualify for. That said, there seems to be little likelihood such significant tariff reductions in the current round.

Of these five scenarios, the second is probably the most likely. Initial movements towards convergence are already visible, as described above. Most of the significant bilateral relationships in world trade are subject to RTAs already (certainly among countries prone to liberalization) and the unbundling of production within these RTAs is leading the “juggernaut” forces for liberalization, currently frustrated at the multilateral level, to push on regional levers.

This is not the worst-case scenario, but it is not optimal either. The outcome is likely to involve multiple overlapping “lasagne plates”, the largest of which would be centred on the US and Europe, with additional Latin American and Asian bits. A bipolar RoO world is likely welfare superior to a fully balkanised RoO world, as larger cumulation zones increase trade, especially among the current spoke countries. But it is not too difficult to imagine that such zones could end up with highly restrictive rules of origin that would serve to isolate production within each zone, with attendant losses for global efficiency. Some mechanism is needed to limit the degree to which these blocs are closed to outside trade.

Table 3 – Potential Scenarios for the RoO World

Option	Main Players	Pros and Cons	Current Likelihood
Nothing Changes	Everybody	Pro (or con?): no negotiation costs beyond those of RTAs; potential <i>de facto</i> broad global bipolar convergence under US and EU RoO models Con: potential exacerbation of the spaghetti bowl problem	Medium
Multilateralisation	Global RoO Hubs (US, EU, Mexico, Australia, Japan, Chile), plus spokes	Pros: Spaghetti problem is attenuated by global limits on RoO Cons: Negotiation is a time consuming and costly global contest involving cycling; potential straitjacket RoO resulting	Low
Convergence	Each Family Hub and Its Spokes	Pros: Creation of lasagne from spaghetti; regional cumulation bowls Cons: Negotiation is a time consuming and costly regional contest in the absence of a RoO hegemon; opens potential for trade-diverting plates and variety of lasagne	Highest
Cap-and-Con	Main Regional RoO Hubs	Pros: Flexibility-cum-openness at the regional level; simpler lasagne plates Con: potential straitjacket cap RoO that discourages convergence	Low

Conclusion

The path to global free trade could proceed on several fronts: first, the standard front of multilateral tariff reductions; second, the gradual opening of preferential blocs via reduction of the restrictiveness of preferential rules of origin. This can occur either via regulation at the global level or via autonomous reform. Third, a path may be found through the expansion of the cumulation zones of the preferential blocs in ways that at the same time promote further bloc-to-bloc liberalization. Finally, we may see some combination of the three mechanisms.

This paper has analysed the feasibility, utility and mechanics of such paths, focusing in particular on RTA rules of origin. We have described RoO regimes around the world, detailed the degree of restrictiveness within regimes and divergence across regimes, and elaborated why these two dimensions matter for economic outcomes. We have subsequently discussed policy

options for reducing restrictiveness and divergence around the world, and found that such a reduction might be most likely at the regional level. Nonetheless, in our view, such processes should be complemented by a multilateral process of RoO capping, though it is important that such caps do not discourage regional convergence.

In more specific terms, we suggest the following:

- At the multilateral level, there should be a process toward capping RoO—an effort to establish a common and limited set of RoO that can be employed in forthcoming, and perhaps also in currently existing, RTAs.
- At the regional level, groups of countries with multiple, overlapping RTAs should pursue avenues to establish inclusive origin regimes that permit cumulation in larger zones to promote trade among spokes—yet do so in order to further open regionalism.
- At the level of individual RTAs, the appropriateness of the RoO should be re-evaluated on a regular basis, with an eye to reducing the barriers to the use third-country inputs in the production of originating goods.

To be sure, opening a full renegotiation of an origin regime, or worse, regimes for several RTAs at once and reconciling differences across regimes either at the regional or global levels, certainly feels like opening a Pandora's Box of endless troubles. Nonetheless, the prospect of incorporating lessons learned over the past decade or more of operation of so many RTAs, bringing the regimes up to date with the commercial and technological realities of the 21st century, certainly makes such an effort seem worthwhile. The way these issues are addressed, both regionally and globally, will determine how, when, and if we arrive at global free trade.

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Appendix I – RTAs Considered in the Study

Agreement	Family Assignment											
	Europe	Americas	USA	USANG	Asia	Africa	America-Asia	Chile	Mexico	Singapore	Japan	Australia
PANEURO	x											
EU - Chile (EUCHL)	x							x				
EU – Mexico (EUMEX)	x								x			
EU - South Africa (EUZAF)	x											
Chile - USA (CHLUSA)		x	x	x				x				
NAFTA		x	x	x					x			
USA - Colombia (USACOL)		x	x	x								
USA - Panama (USAPAN)		x	x	x								
USA - Peru (USAPER)		x	x	x								
Argentina - Brazil - Peru (ARGBRAPER)		x										
Paraguay – Peru (PRYPER)		x										
Uruguay – Peru (URYPER)		x										
Argentina - Colombia (ARGCOL)		x										
Argentina - Ecuador (ARGECU)		x										
Argentina – Venezuela (ARGVEN)		x										
Brazil - Colombia (BRACOL)		x										
Brazil - Ecuador (BRAECU)		x										
Brazil - Venezuela (BRAVEN)		x										
Paraguay - Colombia (PRYCOL)		x										
Paraguay - Ecuador (PRYECU)		x										
Paraguay - Venezuela (PRYVEN)		x										
Uruguay - Colombia (URYCOL)		x										
Uruguay - Ecuador (URYECU)		x										
Uruguay - Venezuela		x										

Agreement	Family Assignment											
	Europe	Americas	USA	USANG	Asia	Africa	America-Asia	Chile	Mexico	Singapore	Japan	Australia
(URYVEN)												
CACM		x										
CACM - Dominican Republic (CACM-DR)		x										
CAFTA - Dominican Republic (CAFTA-RD)		x										
Canada – Costa Rica (CANCRI)		x										
Andean Community (CANDINA)		x										
CARICOM		x										
Chile - Canada (CHLCAN)		x						x				
Chile - CACM (CHLCACM)		x						x				
Chile – Mexico (CHLMEX)		x						x	x			
Chile - Peru (CHLPER)		x						x				
G3		x										
MERCOSUR		x										
MERCOSUR - Bolivia (MERCOSURBOL)		x										
MERCOSUR - Chile (MERCOSURCHL)		x										
Mexico - Bolivia (MEXBOL)		x							x			
Mexico – Costa Rica (MEXCRI)		x							x			
Mexico - Nicaragua (MEXNIC)		x							x			
Mexico - Northern Triangle (MEXNT)		x							x			
Mexico - Uruguay (MEXURY)		x							x			
Chile - Colombia (CHLCOL)		x										
Chile - Ecuador (CHLECU)		x										
USA - Australia (USAAUS)			x	x			x					x
USA – Bahrain (USABAH)			x									
USA -Israel (USAISR)			x									

Agreement	Family Assignment											
	Europe	Americas	USA	USANG	Asia	Africa	America-Asia	Chile	Mexico	Singapore	Japan	Australia
USA - Jordan (USAJOR)			x									
USA – Korea (USA KOR)			x	x			x					
USA - Morocco (USAMOR)			x									
USA - Singapore (USASING)			x	x			x			x		
USA – Oman (USAOMN)			x									
ASEAN					x							
ASEAN - China (ASEANCHN)					x							
ASEAN - Korea (ASEANKOR)					x							
Australia – New Zealand (AUSNZ)					x							X
Australia - Singapore (AUSSING)					x					x		X
Australia - Thailand (AUSTHA)					x							X
BANGKOK					x							
Chile - China (CHLCHN)							x	x				
Chile - Korea (CHLKOR)							x	x				
COMESA						x						
ECOWAS						x						
Japan - Malaysia (JPNMYS)					x							X
Japan - Singapore (JPNSING)					x					x		X
Japan - Thailand (JPNTHA)					x							X
Mexico - Japan (MEXJAP)							x		x			X
P4							x			x		
SADC						x						
SAFTA						x						
Thailand – New Zealand (THANZ)					x							
Peru - Thailand (PERTHA)							x					
GCC												

Comparative Statistics of Rules of Origin

Table B-I – VC Criteria by Agreement

	Regional Value Content/ Build-Up	Build-Down	Maximum Imported Content	Factory Cost	Net Cost
Andean Community			50-55		
Argentina-Brazil-Peru			50		
Argentina-Colombia			40-55		
Argentina-Ecuador			40-55		
Argentina-Venezuela			40-55		
ASEAN	40				
ASEAN-China	40		60		
ASEAN-Korea	35-70	40			
Australia - New Zealand	35-55	30-45		45-60	
Australia-Singapore	30-50				
Australia-Thailand	40-55				45
BANGKOK			50		
Brazil-Colombia			40-55		
Brazil-Ecuador			40-55		
Brazil-Venezuela	55		40-50		
CAFTA-Dominican Republic	30-65	25-55			35
Canada-Costa Rica	30-60				20-30
Caricom			30-65		
Chile-Canada	30-65				20-55
Chile-China	40-50				
Chile-Ecuador			50		
Chile-Korea	45-80	30			
Chile-CACM	20-30				
Chile-Mexico	32-50				26-40
Chile-Peru		50	50		
USA-Chile	40-65	30-55			
Chile-Colombia	30-70				
COMESA			60	35	
ECOWAS				30	
EU-Chile				20-50	
EU-Mexico				20-60	
G-3	35 -60				
Japan-Malaysia	40-60				
Japan-Singapore	40-60				
Japan-Thailand	40				
Mercosur	60		40		
Mercosur-Bolivia	60	40	40		
Mercosur –Chile	60	40			

	Regional Value Content/ Build-Up	Build-Down	Maximum Imported Content	Factory Cost	Net Cost
Mexico-Bolivia	50				40-60
Mexico-Costa Rica	50				40-60
Mexico-Japan	50-90				
Mexico-Nicaragua	50				40-41.66
Mexico-Northern Triangle	50				
Mexico-Uruguay	50-55		50		40-50
NAFTA	30-80				25-70
P4	45-50				
Peru-Thailand	35-60				
Paraguay-Colombia			50		
Paraguay-Ecuador			50-60		
Paraguay-Peru			50		
Paraguay-Venezuela			50		
SADC	40-65				30-65
SAFTA	25-60		60		
Thailand-India	20-40				
Thailand-New Zealand	50				
Uruguay-Colombia			50		
Uruguay-Ecuador			50		
Uruguay-Peru			50		
Uruguay-Venezuela			50		
USA-Australia	45-65	35-50			50
USA-Bahrain	35				
USA-Colombia	35-65	20-65			35
USA-Israel	35				
USA-Jordan	35-60				
USA-Korea	30-60	30-55			35
USA-Morocco	35				
USA-Panama	30-65	20-55			35
USA-Peru	30-65	20-65			35
USA-Singapore	40-65	30-55			

Source: Authors' calculations on the basis of RTA texts.

Table B-II – Regime-Wide RoO in Selected RTAs

RTA	De Minimis	Extended Cumulation	Certification Method
Andean Community	None	No	Public (or delegated to a private entity)
ANZCERTA	10%	No	Public (or delegated to a private entity)
ASEAN	None	No	Public (or delegated to a private entity)
ASEAN – China	None	No	Public (or delegated to a private entity)
ASEAN – Korea	10 (10% of weight in chs. 50-63)	No	Public (or delegated to a private entity)
Australia – Thailand	10%	No	Public (or delegated to a private entity)
BANGKOK	None	No	Public (or delegated to a private entity)
CACM	10 (10% of weight in chs. 50-63)	No	Self-certification
CACM – Chile	8% (not chs. 1-27 unless CS)	No	Self-certification
CAFTA – Dominican Republic	10% (Not chs 4 & 15)	Possibly Ch. 62 (w/Canada and Mexico)	Self-certification
Canada – Costa Rica	10% (excep. in chs 10 to 24; 10% of weight in chs. 50-63)	No	Self-certification
Canada – Chile	9% (excep. in agric. and ind. products; 9% of weight in chs. 50-63)	No	Self-certification
Canada – Israel	10% (excep. in agric. And industrial products; 7% of weight in chs. 50-63)	Yes (w/ USA)	Self-certification
Caricom	None	No	Public (or delegated to a private entity)
Chile – China	8%	No	Public (or delegated to a private entity)
Chile – Colombia	1010% (except in agriculture and processed agriculture products; 10% of weight in textile).	No	Public; limited self-certification
Chile – Ecuador	None	No	Public; limited self-certification
Chile – Korea	8% (not chs. 1-24 unless CS; 8% of weight in chs.	No	Self-certification

RTA	De Minimis	Extended Cumulation	Certification Method
	50-63		
Chile – Peru	None	No	Public; limited self-certification
COMESA	2%	No	Two-step private and public
ECOWAS	None	No	Public (or delegated to a private entity)
EU – Chile	10% (Except chs. 50 - 63)	No	Public; limited self-certification
EU – Mexico	10% (Except chs. 50 - 63)	No	Public; limited self-certification
EU - South Africa	15% (10 for chs 3 & 24) (not chs. 50 to 63)	Yes with ACP (full with SACU)	Public; limited self-certification
G3	7 (7% of weight in chs. 50-63)	No	Two-step private and public
Gulf CC	None	No	Public (or delegated to a private entity)
Japan – Malaysia	To be determined	Limited products from ASEAN	Public (or delegated to a private entity)
Japan – Thailand	To be determined	Limited products from ASEAN	Public (or delegated to a private entity)
Japan – Singapore	To be determined	No	Public (or delegated to a private entity)
Mercosur	None	No	Public (or delegated to a private entity)
Mercosur – Bolivia	None	Yes (Bolivia may cumulate from LAIA)	Public (or delegated to a private entity)
Mercosur – Chile	None	No	Public (or delegated to a private entity)
Mercosur- COL – ECU – VEN	None	Yes (within Mercosur and Andean Com.)	Public (or delegated to a private entity)
Mercosur – Peru	None	Yes (within Mercosur and Andean Com.)	Public (or delegated to a private entity)
Mexico – Nicaragua	7% (excep. Chs 01 to 27 & 50 to 63)	No	Self-certification
Mexico - Northern Triangle	7% (excep. Chs 01 to 27 & 50 to 63)	No	Self-certification
Mexico – Uruguay	8% (excep. Chs 01 to 27 &	No	Self-certification

RTA	De Minimis	Extended Cumulation	Certification Method
	50 to 63)		
Mexico – Bolivia	7% (not chs. 1-27 unless CS; not chs. 50-63)	No	Self-certification
Mexico – Chile	8% (excep. in agric. and ind. products; 9% of weight in chs. 50-63)	No	Self-certification
Mexico – Costa Rica	7% (excep. in chs. 4-15 and headings 0901, 1701, 2105, 2202)	No	Self-certification
NAFTA	7% (exceptions in agric. and ind. products; 7% of weight in chs. 50-63)	No	Self-certification
P4	10%	No	Self-certification
PANEURO	10% (8 - 10% of weight in textiles)	Yes (full in EEA)	Public; limited self-certification
Peru – Thailand	10%	No	Public (or delegated to a private entity)
SAFTA	None	No	Public (or delegated to a private entity)
SADC	10% (not chs. 50-63, 87, 98)	No	Two-step private and public
Singapore – Australia	2%	No	Public (or delegated to a private entity)
Thailand - New Zealand	10%	No	Self-certification
USA – Korea	10% (by weight in textiles; except in agriculture and processed agriculture products)	No	Self-certification
USA – Panama	10% (by weight in textiles; except in agriculture and processed agriculture products)	Possibly for Chapter 61 or 62	Self-certification
USA – Colombia	10% (by weight in textiles; except in agriculture and processed agriculture products)	Possibly with Peru	Self-certification
USA – Peru	10% (by weight in textiles; except in agriculture and processed agriculture products)	Possibly with Colombia	Self-certification
USA – Australia	10% (except in agriculture and processed agriculture products)	No	Self-certification

RTA	De Minimis	Extended Cumulation	Certification Method
USA – Bahrain	None	Possibly with regional counties	Self-certification
USA – Chile	10% % (by weight in textiles; except in agriculture and processed agriculture products)	No	Self-certification
USA – Israel	None	Yes (West Bank and Gaza)	Self-certification
USA – Jordan	None	QIZ cumulation from Israel	Self-certification
USA – Singapore	10% (except in various agriculture products; 7% of weight in chs. 50-63)	ISI*	Self-certification

*Integrated Sourcing Initiative. Primarily ICT products need not meet any rule of origin if shipped directly between the signatories.

Source: Authors' calculations on the basis of RTA texts.

Table B-III - Average Restrictiveness by HS Section for selected agreements

Section	ANDEAN C	Argent.-Brazil-Peru	ASEAN	Australia-Singapore	CACM	CAFTA-DR	CARICOM	Chile-China	Chile-Korea	Chile-Mexico	Chile-USA	ECOWAS	EU-Chile	Japan-Malaysia	Japan-Singapore	Japan-Thailand	MERCOSUR	MERCOSUR-Chile	Mexico-Bolivia	Mexico-Japan	NAFTA	PANEURO	SADC	USA-Israel	USA-Jordan	USA-Singapore	Non Preferential
1. Live Animals	3.0	3.0	5.0	7.0	9.2	9.0	13.6	8.0	10.5	8.4	8.7	1.0	13.6	9.9	16.0	9.8	3.2	3.1	8.8	9.9	8.5	13.6	16.0	5.0	5.0	8.6	11.9
2. Vegetable prod.	3.0	3.0	5.0	7.0	8.4	7.8	10.2	8.0	8.4	8.0	8.2	1.0	11.1	8.0	16.0	7.8	3.0	3.0	8.0	8.0	7.8	11.1	12.7	5.0	5.0	7.9	14.2
3. Fats & Oils	3.0	8.3	5.0	7.0	9.0	8.0	4.7	8.0	11.0	8.1	13.6	1.0	5.0	7.8	16.0	8.1	6.9	4.2	13.9	8.5	13.6	5.0	5.5	5.0	5.0	13.6	6
4. Food. Bev. & Tab.	3.0	7.8	5.0	7.0	8.0	8.6	6.0	6.5	8.2	8.5	9.3	1.0	7.0	10.7	15.6	10.5	4.7	4.4	10.4	11.3	8.4	7.3	5.6	5.0	5.0	8.5	7.5
5. Mineral Prod.	3.0	3.0	5.0	7.0	7.6	6.2	5.9	5.7	7.5	8.6	5.3	1.0	5.1	2.8	14.0	6.4	3.1	3.0	8.6	8.7	8.6	5.1	6.0	5.0	5.0	5.4	10.4
6. Chemicals	3.0	4.5	5.0	7.0	5.3	3.1	5.2	5.6	4.0	5.0	3.2	1.0	6.7	2.3	10.3	2.6	7.6	3.7	6.1	5.3	5.8	6.7	6.0	5.0	5.0	3.1	4.8
7. Plastics	3.0	3.0	5.0	7.4	6.7	4.5	4.8	5.6	4.1	8.7	6.9	1.0	5.2	3.0	11.0	3.1	3.0	4.1	8.8	10.1	10.2	5.2	10.7	5.0	5.0	3.6	6.2
8. Leather Godds	3.0	3.0	4.9	9.1	5.6	6.6	6.2	5.0	6.9	9.9	7.9	1.0	6.0	10.8	15.3	9.7	3.0	3.0	8.8	5.0	7.2	4.5	5.8	5.0	4.9	7.5	5.9
9. Wood Prod.	3.0	3.0	4.1	7.0	5.8	6.1	7.4	5.9	6.1	7.0	6.0	1.0	5.4	6.0	14.6	6.6	3.0	3.0	6.7	7.1	6.5	5.4	6.1	5.0	5.0	6.1	5.3
10. Pulp & Paper	3.0	3.0	5.0	7.0	5.3	8.5	6.0	5.9	6.4	7.6	8.6	1.0	6.2	1.0	7.7	5.3	3.7	4.3	8.0	8.0	9.5	6.2	6.1	5.0	5.0	6.2	6.1
11. Textile & App.	3.0	4.5	4.0	9.9	8.0	16.0	6.1	6.0	14.9	3.0	16.1	1.0	4.0	12.9	4.9	12.4	7.4	7.8	16.0	16.0	16.1	4.0	2.9	5.0	4.0	16.3	6.9
12. Footwear	3.0	3.5	4.8	9.2	10.0	8.6	8.6	5.5	12.0	12.3	11.2	1.0	6.8	8.1	13.1	8.7	3.7	5.9	12.3	14.2	14.4	6.8	6.9	5.0	4.8	9.7	6.8
13. Stone & Glass	3.0	3.0	5.0	7.1	6.7	9.2	5.6	5.3	10.0	10.0	9.1	1.0	5.1	3.3	12.6	3.5	3.1	3.3	9.8	9.9	9.7	5.1	5.6	5.0	4.9	9.3	5.6
14. Jewellery	3.0	3.0	5.0	7.6	6.5	7.5	5.8	5.0	9.4	9.4	9.0	1.0	5.7	4.0	14.0	5.5	3.0	3.0	10.6	9.4	9.2	5.7	5.8	5.0	5.0	9.0	6.7
15. Base Metals	3.0	3.3	5.6	7.1	6.3	7.0	6.0	5.3	8.0	9.1	8.4	1.0	5.4	1.1	11.6	3.8	3.3	4.0	9.7	8.7	9.2	5.5	5.2	5.0	5.0	7.6	6
16. Mach & Elec. Eq.	3.0	4.7	5.0	7.1	4.6	5.5	6.0	5.2	6.1	5.8	6.0	1.0	6.8	1.0	16.0	2.1	5.2	6.3	5.9	5.0	6.0	6.9	6.9	5.0	5.0	5.9	5.8
17. Transportation Eq.	3.9	5.3	5.0	7.6	7.1	4.7	6.0	5.2	4.2	4.7	6.0	1.0	3.7	2.3	15.9	3.4	4.9	6.9	7.1	7.9	7.5	5.6	6.8	5.0	5.0	6.4	7.3
18. Optics	2.8	3.2	5.0	7.1	5.0	4.1	6.0	5.0	5.1	6.4	4.8	1.0	6.2	1.1	15.8	2.3	4.4	5.3	6.2	4.9	5.4	6.2	6.7	5.0	5.0	5.3	6.6
19. Arms & Ammun.	3.0	3.0	5.0	7.0	6.0	6.1	6.0	6.0	5.6	6.3	6.1	1.0	6.0	1.0	6.5	3.0	3.0	3.0	6.3	6.1	6.1	6.0	5.0	5.0	5.0	6.5	7.2
20. Div. Merchandise	3.1	3.0	4.8	7.2	5.0	5.8	5.9	5.5	6.0	6.7	6.5	1.0	5.5	1.5	12.0	3.1	3.1	5.2	6.9	6.9	6.4	5.5	5.5	5.0	5.0	6.6	6.3
21. Work of Art	3.0	3.0	5.0	7.0	4.0	5.4	6.0	5.0	6.0	8.0	4.0	1.0	6.0	1.0	16.0	3.0	3.0	3.0	8.0	8.0	8.0	6.0	6.0	5.0	5.0	5.4	6.1

Source: Authors' Calculations on the basis of RTA

Table B-IV – RoO Combinations around the World, by Regime

	Andean C.	ANZCER TA	Argentina- Brazil- Peru	Argentina- Venezuela	Argentina- Colombia	Argentina- Ecuador	ASEAN	ASEAN- China	ASEAN- Korea	Australia- Singapore	Australia- Thailand	BANGKO K	Brazil- Colombia	Brazil- Ecuador	Brazil- Venezuela
NC + TECH	2.0%	0.0%	18.1%	12.0%	14.0%	14.6%	16.0%		8.2%		0.1%		17.1%	17.6%	12.1%
NC + VC	1.4%	0.1%	11.1%	13.3%	13.9%	13.6%	79.4%		76.3%		0.0%		14.1%	14.2%	14.2%
NC + VC + TECH								100.0%	0.1%	100.0%		100.0%			
Wholly Obtained							0.0%		0.5%		0.2%				
Subtotal	3.3%	0.1%	29.2%	25.2%	27.8%	28.3%	95.4%	100.0%	85.1%	100.0%	0.4%	100.0%	31.2%	31.8%	26.3%
CI		0.0%													
CI + TECH											0.0%				
CI + VC															
CI + VC + TECH															
CI + ECTC															
CI + ECTC + TECH															
Subtotal	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
CS		25.1%					1.9%		1.1%		22.4%				
CS + TECH		0.3%									0.2%				
CS + VC		0.2%									0.2%				
CS + VC + TECH															
CS + ECTC		5.1%									5.9%				
CS + ECTC + TECH															
CS + ECTC + VC															
Subtotal	0.0%	30.7%	0.0%	0.0%	0.0%	0.0%	1.9%	0.0%	1.1%	0.0%	28.8%	0.0%	0.0%	0.0%	0.0%
CH	96.7%	31.8%	59.8%	65.6%	68.6%	68.3%	2.0%		2.4%		29.5%		65.2%	64.9%	64.6%
CH + TECH		0.0%	6.8%						0.3%		1.5%				
CH + VC		6.8%		5.7%					0.1%		4.1%		0.2%		5.7%
CH + VC + TECH															
CH + ECTC		7.1%		0.6%	0.6%	0.6%	0.5%		0.4%		5.3%		0.6%	0.6%	0.6%
CH + ECTC + TECH															
CH + ECTC + VC		3.6%									6.2%				
Subtotal	96.7%	49.4%	66.6%	72.0%	69.3%	68.9%	2.5%	0.0%	3.2%	0.0%	46.7%	0.0%	66.1%	65.5%	70.9%
CC		14.7%	2.4%	1.9%	2.0%	2.0%	0.2%		4.7%		12.8%		1.9%	1.9%	1.9%
CC + TECH		2.0%							4.7%						
CC + VC		0.2%		0.1%	0.1%	0.1%			0.0%		3.7%		0.1%	0.1%	0.1%
CC + VC + TECH		2.6%									5.6%				
CC + ECTC		0.2%	1.8%	0.8%	0.8%	0.7%					2.0%		0.7%	0.7%	0.8%
CC + ECTC + TECH									1.1%						
CC + ECTC + VC															
Subtotal	0.0%	19.7%	4.3%	2.8%	2.9%	2.8%	0.2%	0.0%	10.5%	0.0%	24.1%	0.0%	2.7%	2.7%	2.8%
TOTAL	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Table B-IV – RoO Combinations around the World, by Regime (cont.)

	CACM	CACM-DR	CAFTA-DR	Canada-Costa Rica	CARICOM	Chile-CACM	Chile-Canada	Chile-China	Chile-Colombia	Chile-Ecuador	Chile-Korea	Chile-Mexico	Chile-Peru	Chile-USA	COMESA
NC + TECH	0.0%	0.3%	0.5%		12.4%	8.2%	0.0%		1.3%	9.3%		0.1%	0.3%		
NC + VC			0.6%		25.9%	0.1%		88.0%	0.2%		0.6%	0.6%	0.6%		100.0%
NC + VC + TECH										0.0%					
Wholly Obtained		11.4%			5.6%	1.7%	0.0%							0.0%	
Subtotal	0.0%	11.6%	1.1%	0.0%	43.9%	10.0%	0.0%	88.0%	1.5%	9.4%	0.6%	0.6%	0.9%	0.0%	100.0%
CI	0.2%	0.1%	0.1%	5.0%			1.0%					0.4%		0.0%	
CI + TECH				0.1%			0.0%								
CI + VC				0.5%											
CI + VC + TECH				0.0%											
CI + ECTC			0.0%	0.4%			0.2%					0.3%			
CI + ECTC + TECH			0.1%	0.0%	0.1%										
Subtotal	0.2%	0.1%	0.2%	6.2%	0.1%	0.0%	1.2%	0.0%	0.0%	0.0%	0.0%	0.8%	0.0%	0.0%	0.0%
CS	30.2%	13.7%	19.9%	13.6%		19.1%	10.3%		0.3%		1.6%	3.0%	0.0%	15.8%	
CS + TECH	0.9%	0.4%	0.2%				0.1%							0.2%	
CS + VC			0.2%			0.0%	0.1%		0.1%		2.0%	0.8%		0.3%	
CS + VC + TECH				0.0%											
CS + ECTC	0.2%	0.6%	6.1%	1.0%		0.5%	4.4%				0.3%	2.3%		6.3%	
CS + ECTC + TECH							0.0%							0.1%	
CS + ECTC + VC							0.0%				0.2%			0.0%	
Subtotal	31.3%	14.6%	26.3%	14.7%	0.0%	19.6%	15.0%	0.0%	0.4%	0.0%	4.0%	6.1%	0.0%	22.8%	0.0%
CH	37.5%	52.0%	24.3%	37.6%	53.0%	54.3%	17.5%	0.9%	83.9%	90.6%	44.4%	46.2%	82.9%	24.1%	
CH + TECH	0.5%	0.9%	1.3%	0.0%	0.2%	0.6%	0.2%					0.0%		1.3%	
CH + VC			1.2%	2.8%			3.4%		0.0%		4.6%	0.3%		2.0%	
CH + VC + TECH				0.1%											
CH + ECTC	6.7%	6.7%	8.7%	10.1%	1.5%	0.3%	18.5%		0.7%		10.8%	16.0%	5.8%	11.2%	
CH + ECTC + TECH							0.1%							0.1%	
CH + ECTC + VC			0.2%				0.5%		0.0%		0.5%	0.5%		0.4%	
Subtotal	44.8%	59.6%	35.7%	50.6%	54.6%	55.2%	40.3%	0.9%	84.6%	90.6%	60.2%	63.0%	88.7%	39.1%	0.0%
CC	21.1%	6.3%	22.3%	16.8%	1.4%	15.2%	28.3%	11.2%	11.7%		22.9%	28.2%	1.9%	23.0%	
CC + TECH		0.0%	0.5%	0.1%			0.1%				0.0%	0.0%		0.8%	
CC + VC			0.1%						0.1%		1.7%	0.6%		0.0%	
CC + VC + TECH															
CC + ECTC	2.6%	7.7%	8.2%	5.9%			9.5%		1.7%		4.9%	0.6%	2.7%	8.5%	
CC + ECTC + TECH			5.7%	5.8%			5.6%				5.7%		5.8%	5.9%	
CC + ECTC + VC															
Subtotal	23.7%	14.1%	36.7%	28.6%	1.4%	15.2%	43.5%	11.2%	13.5%	0.0%	35.2%	29.5%	10.4%	38.1%	0.0%
TOTAL	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Table B-IV – RoO Combinations around the World, by Regime (cont.)

	ECOWAS	EU-Chile	EU-Mexico	EU-S. Africa	G3	GCC	Japan-Malaysia	Japan-Singapore	Japan-Thailand	MERCOSUR	Mercosur-Bolivia	Mercosur-Chile	Mexico-Bolivia	Mexico-Costa Rica	Mexico-Japan
NC + TECH		19.0%	19.3%	18.9%	0.1%		0.2%	13.0%	1.2%	4.8%	21.9%	21.2%		0.0%	0.2%
NC + VC		11.7%	11.0%	11.1%	0.4%		0.6%		0.4%	13.7%	20.2%	22.3%	0.0%	0.0%	0.2%
NC + VC + TECH		4.3%	3.8%	4.2%		100.0%									
Wholly Obtained		7.5%	7.1%	7.4%				61.7%							
Subtotal	0.0%	42.4%	41.2%	41.5%	0.5%	100.0%	0.8%	74.7%	1.7%	18.5%	42.1%	43.5%	0.0%	0.1%	0.5%
CI		0.3%	0.3%	0.3%	0.1%								0.4%		
CI + TECH		1.6%	1.4%	1.6%											
CI + VC					0.5%										
CI + VC + TECH															
CI + ECTC		1.0%	0.6%	1.0%	0.3%								0.3%	0.0%	0.0%
CI + ECTC + TECH		0.3%	0.4%	0.3%											
Subtotal	0.0%	3.3%	2.7%	3.2%	0.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.7%	0.0%	0.0%
CS	100.0%				1.7%		50.2%		19.1%				2.9%	2.9%	8.5%
CS + TECH					0.1%									0.0%	
CS + VC					4.7%		0.2%						4.2%	4.3%	0.1%
CS + VC + TECH															
CS + ECTC					1.5%			0.0%	0.1%				2.0%	1.7%	2.0%
CS + ECTC + TECH															
CS + ECTC + VC					0.2%										0.0%
Subtotal	100.0%	0.0%	0.0%	0.0%	8.2%	0.0%	50.4%	0.0%	19.2%	0.0%	0.0%	0.0%	9.1%	8.9%	10.7%
CH		21.8%	21.1%	21.2%	26.0%		14.3%	18.6%	39.1%	63.8%	45.1%	45.8%	25.1%	24.8%	25.4%
CH + TECH		14.0%	13.7%	14.8%	0.1%		0.2%	0.2%	0.1%	9.5%		0.0%	0.0%	0.0%	0.1%
CH + VC		13.0%	12.4%	13.3%	2.2%		0.4%	0.0%	0.2%	8.1%	12.7%	10.7%	2.7%	2.8%	3.2%
CH + VC + TECH		0.3%	0.4%	0.5%											
CH + ECTC		1.0%	2.1%	1.3%	18.3%		2.5%	5.2%	7.6%				18.6%	19.1%	13.3%
CH + ECTC + TECH		0.1%	0.5%	0.1%			5.5%		0.2%				0.3%	0.3%	
CH + ECTC + VC			0.4%		0.5%			0.0%					0.5%	0.5%	0.5%
Subtotal	0.0%	50.2%	50.6%	51.2%	47.1%	0.0%	23.0%	24.0%	47.2%	81.5%	57.9%	56.5%	47.2%	47.5%	42.5%
CC		4.2%	4.2%	4.1%	29.3%		13.7%		19.8%				29.5%	31.6%	30.3%
CC + TECH			1.3%		0.0%		8.0%		5.2%				0.0%		0.1%
CC + VC					0.2%								0.4%	0.3%	
CC + VC + TECH															
CC + ECTC			0.0%		8.0%		3.7%	1.3%	5.8%				7.2%	5.7%	10.0%
CC + ECTC + TECH					5.9%		0.4%		1.1%				5.7%	5.9%	5.9%
CC + ECTC + VC													0.1%		
Subtotal	0.0%	4.2%	5.5%	4.1%	43.3%	0.0%	25.8%	1.3%	32.0%	0.0%	0.0%	0.0%	42.9%	43.5%	46.3%
TOTAL	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Table B-IV – RoO Combinations around the World, by Regime (cont.)

	Mexico-N. Triangle	Mexico- Nicaragua	Mexico- Uruguay	NAFTA	P4	PANEURO	Paraguay- Colombia	Paraguay- Ecuador	Paraguay-Peru	Paraguay- Venezuela	Peru-Thailand	SADC	SAFTA	Thailand-N. Zealand	Uruguay- Colombia
NC + TECH		0.0%	0.1%	0.4%		18.8%		8.4%	5.5%	0.5%	0.6%	15.2%		3.9%	0.5%
NC + VC		0.0%	0.2%			11.1%		0.0%				23.8%			
NC + VC + TECH						4.3%						0.8%			
Wholly Obtained				0.0%		7.4%					3.3%	8.9%			
Subtotal	0.0%	0.0%	0.3%	0.4%	0.0%	41.5%	0.0%	8.4%	5.5%	0.5%	3.9%	48.6%	0.0%	3.9%	0.5%
CI	0.6%	0.4%	0.9%	0.8%		0.3%						1.9%		0.2%	
CI + TECH				0.0%		1.6%					0.1%				
CI + VC															
CI + VC + TECH															
CI + ECTC	0.4%	0.3%	0.3%	0.4%		1.1%						0.5%			
CI + ECTC + TECH						0.3%									
Subtotal	1.0%	0.7%	1.2%	1.1%	0.0%	3.2%	0.0%	0.0%	0.0%	0.0%	0.1%	2.4%	0.0%	0.2%	0.0%
CS	9.1%	2.8%	7.4%	9.4%	20.3%						25.5%	0.8%		24.8%	
CS + TECH				0.1%							0.3%			0.0%	
CS + VC	0.2%	4.1%	0.2%	0.1%	0.0%						0.3%		3.4%		
CS + VC + TECH															
CS + ECTC	3.5%	2.5%	3.2%	4.3%	0.5%						1.2%			0.2%	
CS + ECTC + TECH				0.0%										0.0%	
CS + ECTC + VC		0.2%		0.0%											
Subtotal	12.8%	9.6%	10.7%	14.0%	20.8%	0.0%	0.0%	0.0%	0.0%	0.0%	27.3%	0.8%	3.4%	25.0%	0.0%
CH	23.6%	24.6%	40.6%	18.0%	44.8%	21.2%	99.6%	89.5%	93.6%	99.2%	36.2%	44.5%	96.6%	40.8%	97.2%
CH + TECH	0.1%	0.0%	0.0%	0.2%		14.7%					1.3%	1.8%		0.3%	
CH + VC	0.8%	2.7%	0.1%	3.7%	4.2%	13.3%					0.8%	0.1%		1.6%	
CH + VC + TECH						0.6%						1.3%			
CH + ECTC	17.8%	19.1%	16.0%	18.4%	1.4%	1.3%	0.0%				8.1%			0.2%	0.6%
CH + ECTC + TECH	0.1%			0.4%		0.1%									
CH + ECTC + VC	0.3%	0.5%	0.5%	0.6%	4.2%									5.4%	
Subtotal	42.7%	46.9%	57.3%	41.2%	54.5%	51.2%	99.6%	89.5%	93.6%	99.2%	46.4%	47.7%	96.6%	48.2%	97.8%
CC	28.8%	29.8%	24.7%	28.0%	16.7%	4.1%		1.8%	0.1%		21.2%	0.5%		13.3%	0.6%
CC + TECH		0.0%	0.4%	0.1%							0.1%			1.1%	
CC + VC	0.0%	0.3%			2.4%									3.3%	
CC + VC + TECH					5.6%									4.7%	
CC + ECTC	9.2%	6.8%	5.4%	9.6%	0.1%		0.4%	0.2%	0.7%	0.3%	1.1%			0.2%	1.0%
CC + ECTC + TECH	5.7%	5.6%		5.6%							0.0%				
CC + ECTC + VC		0.1%													
Subtotal	43.6%	42.7%	30.5%	43.3%	24.7%	4.1%	0.4%	2.1%	0.8%	0.3%	22.4%	0.5%	0.0%	22.6%	1.6%
TOTAL	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Methodologies for Measuring Restrictiveness of RoO

C.1. Estevadeordal (2000)

The observation rule for yields a RoO index as follows:

$$y = 1 \text{ if } y^* \leq \text{CI}$$

$$y = 2 \text{ if } \text{CI} < y^* \leq \text{CS}$$

$$y = 3 \text{ if } \text{CS} < y^* \leq \text{CS and VC}$$

$$y = 4 \text{ if } \text{CS and VC} < y^* \leq \text{CH}$$

$$y = 5 \text{ if } \text{CH} < y^* \leq \text{CH and VC}$$

$$y = 6 \text{ if } \text{CH and VC} < y^* \leq \text{CC}$$

$$y = 7 \text{ if } \text{CC} < y^* \leq \text{CC and TECH}$$

where y^* is the latent level of restrictiveness of RoO (rather than the observed level of restrictiveness); CI is change of tariff classification at the level of tariff item (8-10 digits), CS is change at the level of subheading (6-digit HS), CH is change at the level of heading (4 digits), and CC is change at the level of chapter (2 digits HS); VC is a value content criterion; and TECH is a technical requirement.

Suominen (2004) makes three modifications to the observation rule in the case of RoO for which no CTC is specified in order to allow for coding of such RoO in the PANEURO, SADC, and other regimes where not all RoO feature a CTC component. First, RoO based on the import content rule are equated to a change in heading (value 4) if the content requirement allows up to 50 percent of non-originating inputs of the ex-works price of the product. Value 5 is assigned when the share of permitted non-originating inputs is below 50 percent, as well as when the import content criterion is combined with a technical requirement. Second, RoO featuring an exception alone is assigned the value of 1 if exception concerns a heading or a number of headings, and 2 if the exception concerns a chapter or a number of chapters. Third, RoO based on the wholly-obtained criterion are assigned value 7.

C.2. Harris (2007)

This index is based on a point system that adds or subtracts points based on different elements used in the definition of the rule of origin. The Change of Classification points are based on the magnitude of the required change, as are Exception Points and Addition Points (Additions are like negative exceptions, where non-originating inputs that would otherwise be prohibited by the change of classification are permitted). Value Test Points are based on the magnitude of the required value content, with adjustments that depend on the method of calculation. The point

values were calibrated by observing the relative frequencies of alternative rule combinations in a sample of 13 RTAs in the Americas.

Restrictiveness Points:

Change of classification points:

ΔI	+2
ΔS	+4
ΔH	+6
ΔC	+8

Exception Points:

exI	+4
>exI and \leq exS	+5
>exS and \leq exH	+6
>exH and \leq exC	+7
>exC	+8

Addition Points:

addI	-5
>addI and \leq addS	-6
>addS and \leq addH	-7
>addH and <addC	-8
add without CC ⁵⁰	+8

Value Test Points:

>0% and \leq 40%	+5
>40% and \leq 50%	+6
>50% and \leq 60%	+7
>60%	+8
Net Cost	+1

Technical Requirement Points: +4

Alternative Rule Points: -3

Wholly Obtained: +16

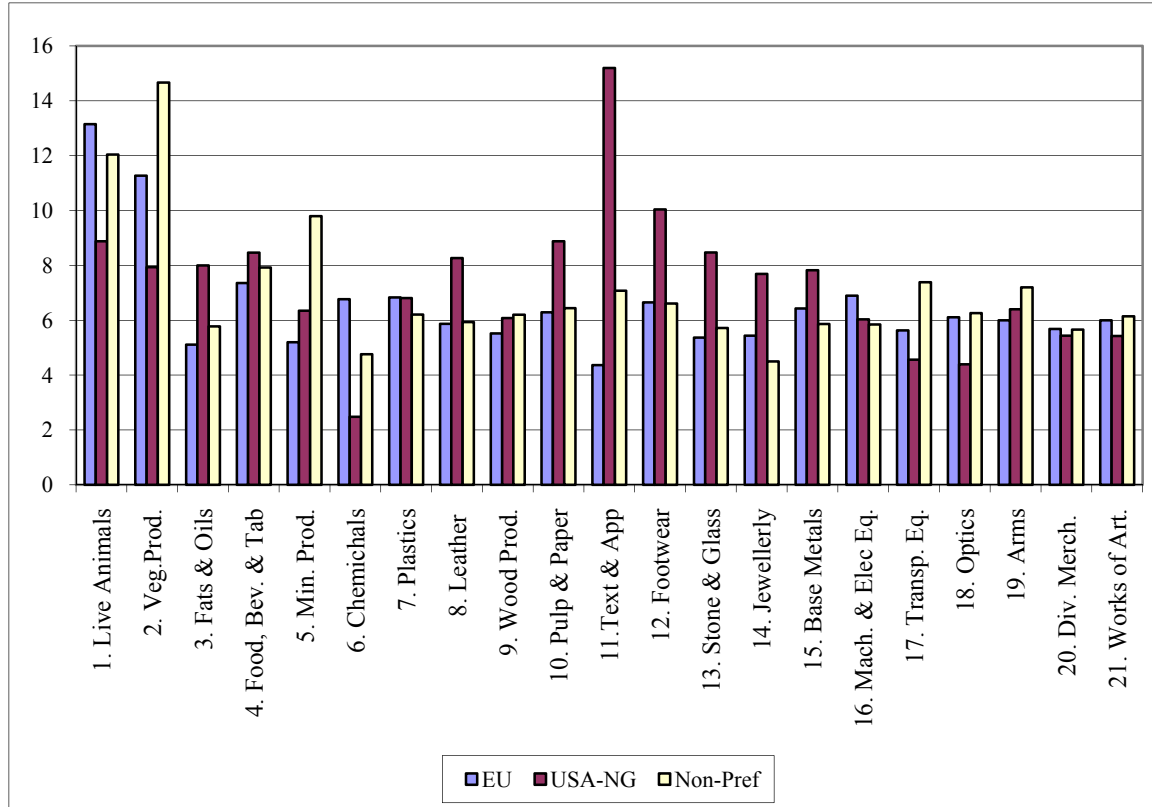
⁵⁰ CC = change of classification.

Sectoral Roo Restrictiveness in Main Roo Families

Table D-I Similarity of Rules in Selected Families (% of agreements coinciding at the product level)

Section	Africa	Amer.- Asia	Americas	Asia	Chile	Europe	Japan	Mexico	Singapore	USA	USA- NG	Global
1. Live Animals	25%	67%	47%	34%	56%	100%	74%	69%	39%	55%	90%	31%
2. Vegetable Products	27%	77%	48%	39%	61%	100%	61%	81%	40%	58%	92%	34%
3. Fats and Oils	27%	61%	40%	25%	26%	100%	66%	45%	26%	39%	65%	26%
4. Food, Bev. & Tobacco	31%	36%	43%	30%	43%	98%	55%	56%	29%	51%	79%	28%
5. Mineral Products	25%	55%	49%	29%	43%	100%	35%	88%	40%	49%	80%	29%
6. Chemicals	25%	29%	48%	26%	29%	99%	47%	49%	27%	41%	61%	32%
7. Plastics	25%	30%	52%	27%	29%	88%	45%	46%	30%	32%	46%	35%
8. Leather Goods	25%	54%	49%	32%	37%	100%	54%	46%	32%	56%	88%	30%
9. Wood Products	25%	84%	49%	51%	59%	100%	67%	75%	48%	60%	98%	37%
10. Pulp and Paper	25%	59%	47%	38%	48%	100%	29%	68%	42%	43%	68%	30%
11. Textile and App.	29%	57%	31%	20%	43%	95%	36%	60%	25%	67%	86%	27%
12. Footwear	25%	45%	35%	28%	42%	94%	39%	71%	33%	42%	61%	25%
13. Stone and Glass	25%	57%	49%	25%	48%	100%	27%	88%	35%	53%	88%	31%
14. Jewellery	25%	60%	49%	29%	47%	100%	42%	74%	31%	45%	78%	30%
15. Base Metals	26%	46%	44%	30%	45%	98%	27%	69%	35%	49%	79%	29%
16. Machinery & Elec Eqpt.	25%	42%	44%	26%	43%	96%	30%	74%	31%	49%	81%	31%
17. Transportation Eqpt.	25%	41%	48%	26%	40%	94%	28%	64%	27%	52%	66%	34%
18. Optics	25%	50%	54%	26%	53%	96%	31%	69%	30%	56%	83%	37%
19. Arms & Ammunition	25%	47%	50%	28%	58%	100%	26%	76%	50%	67%	88%	34%
20. Diversified Merchandise	26%	42%	48%	25%	42%	97%	29%	81%	29%	55%	67%	32%
21. Works of Art, Misc.	25%	46%	49%	26%	25%	100%	25%	89%	25%	48%	79%	30%

Figure D-I Average Restrictiveness of Mode EU, USA(NG) and Non-Preferential Rules by HS Section



Source: Authors' Calculations on the basis of RTA texts.

Figure D-II-XIII Average Mode Restrictiveness, Frequency of Mode, and Deviation from Mode in 12 Families

Figure D -II Africa (4 Agreements)

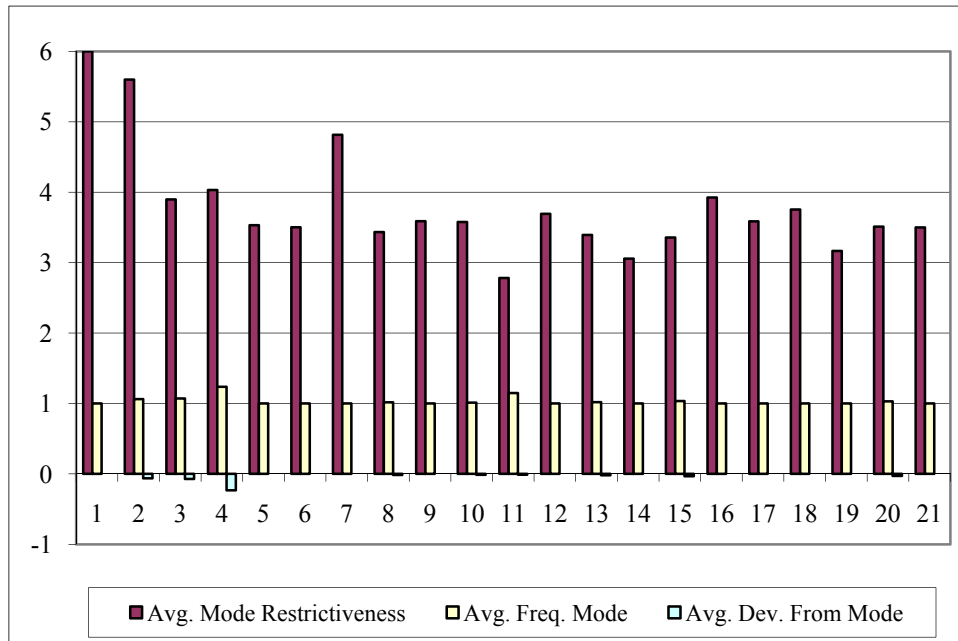


Figure D -III America - Asia (7 Agreements)

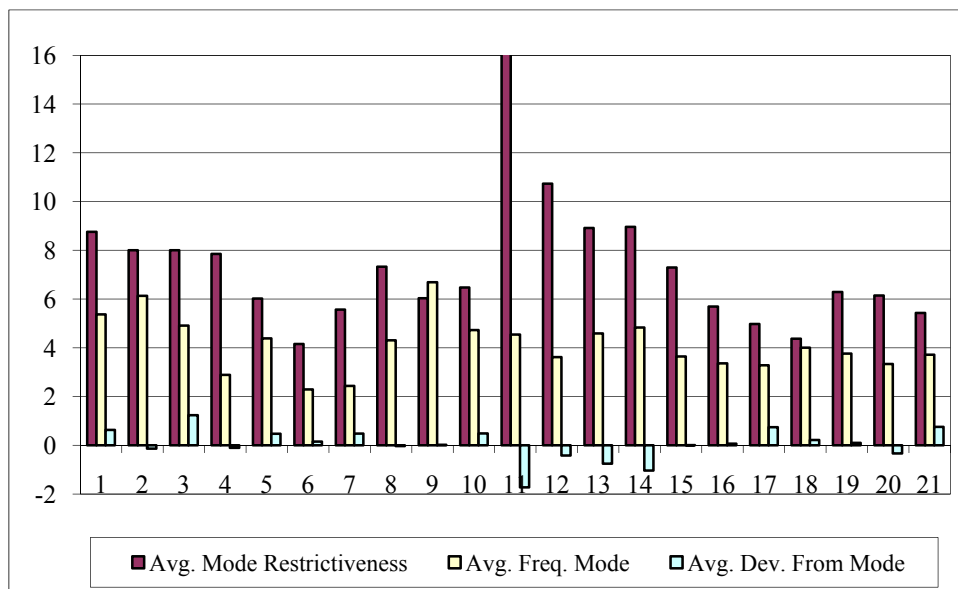


Figure D -IV America (39 Agreements)

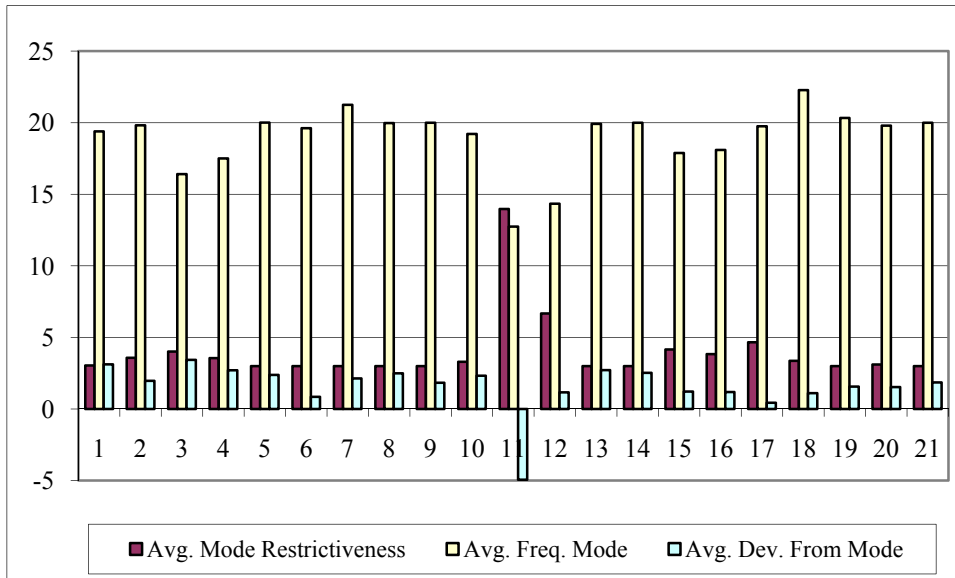


Figure D -V Asia (11 Agreements)

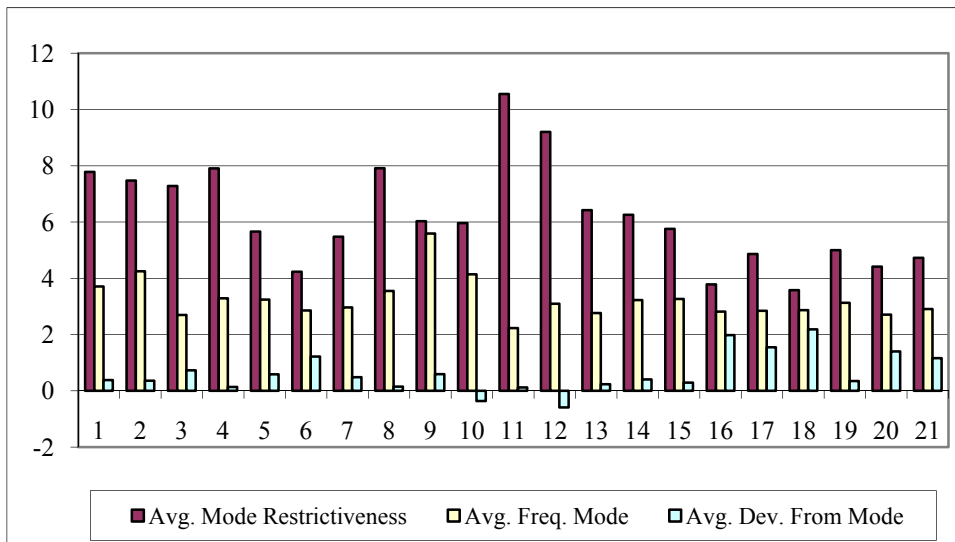


Figure D -VI Chile (8 Agreements)

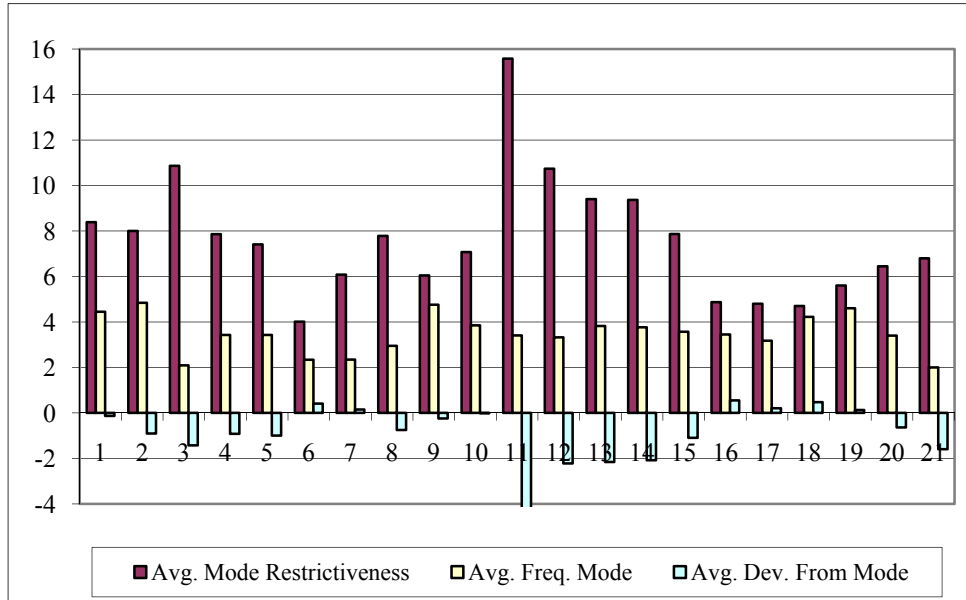


Figure D -VII Europe (4 Agreements)

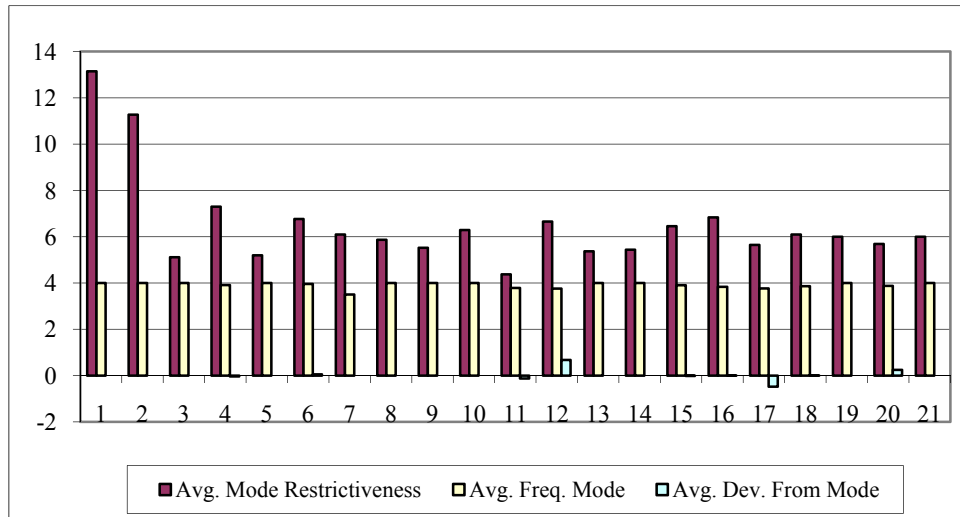


Figure D -VIII Japan (4 Agreements)

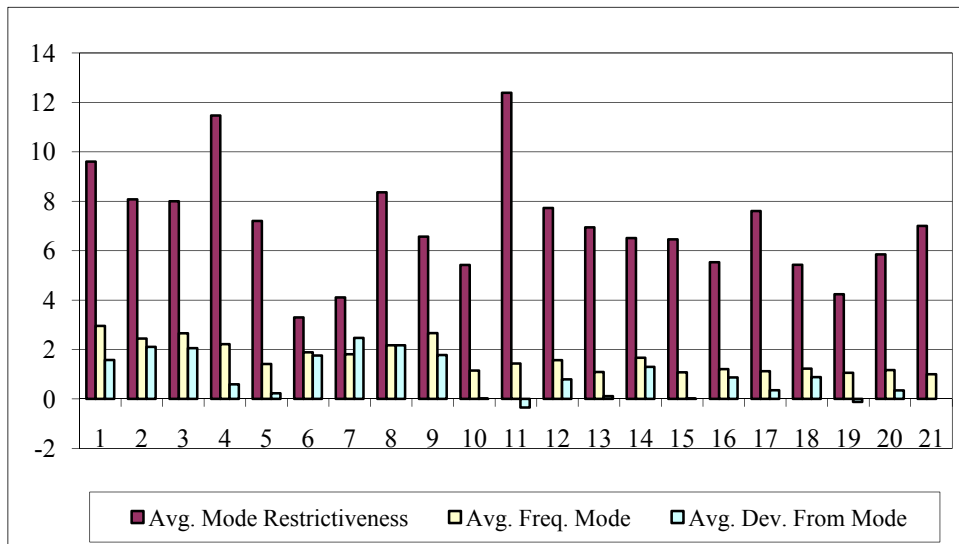


Figure D -IX Mexico (9 Agreements)

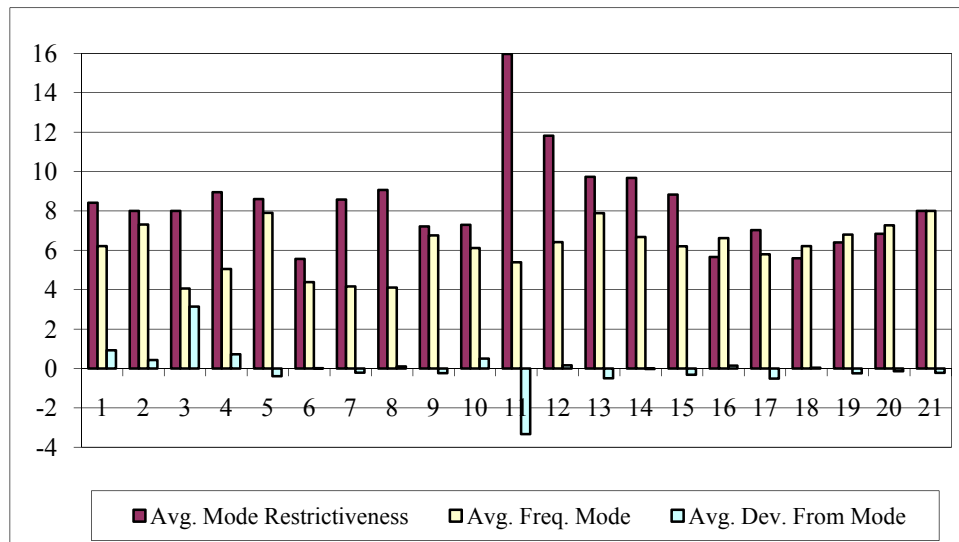


Figure D -X Singapore (4 Agreements)

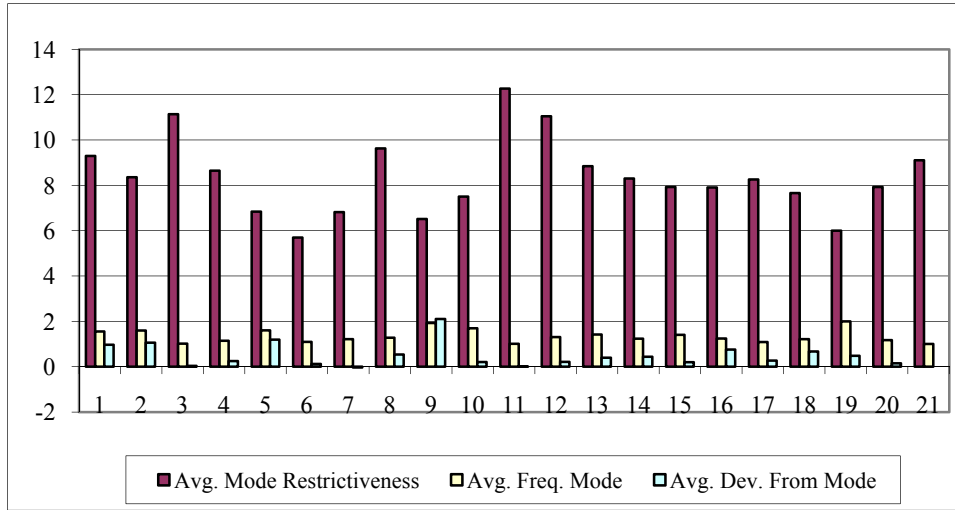


Figure D-X1 USA (13 Agreements)

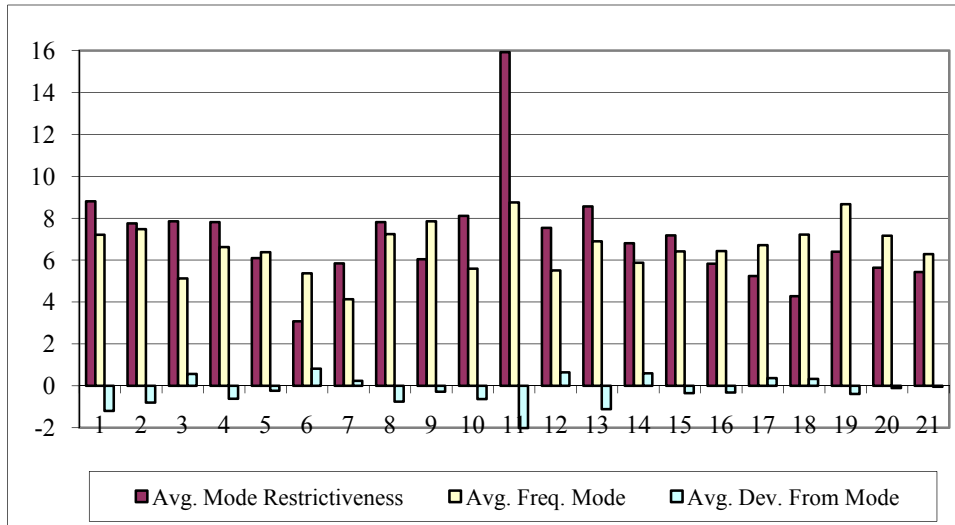


Figure D -XII Global (69 Agreements)

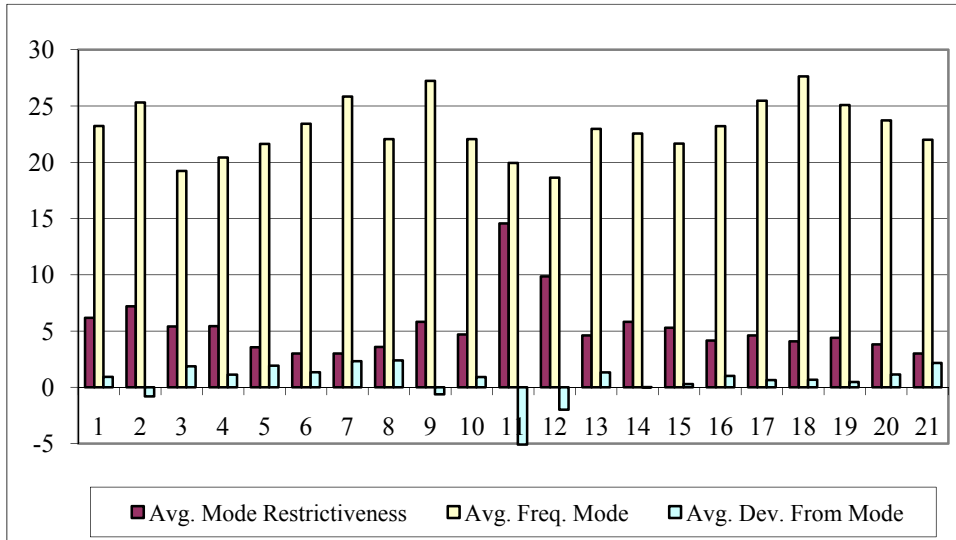


Figure D-XIII USA-NG (10 Agreements)

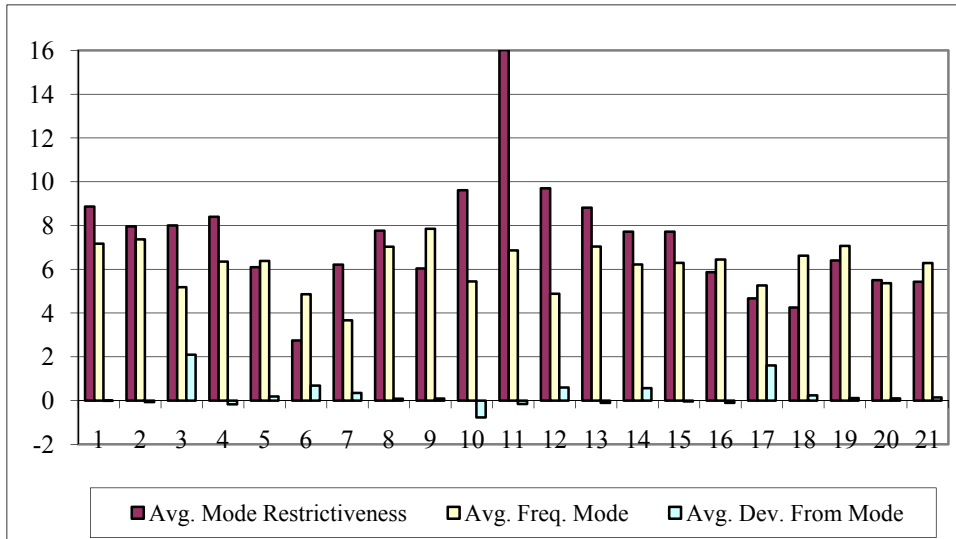


Table D-II - Revealed Families
(With frequency Greater than 200)

Revealed Family	Frequency
BANGKOK	2,227
JPNSING	1,822
AUSSING	1,650
ASEANKOR, ECOWAS, JPNMYS	1,148
ASEAN, CHLCHN, USABAH, USAISR, USAJOR, USAMOR	1,028
ASEAN, USABAH, USAISR, USAJOR, USAMOR	952
COMESA	828
ASEANKOR, ECOWAS	741
ARGBRAPER, PRYPER, URYPER, ARGCOL, ARGECU, ARGVEN, BRACOL, BRAECU, BRAVEN, PRYCOL, PRYECU, PRYVEN, URYCOL, URYECU, URYVEN, CANDINA, CHLPER, MERCOSUR, MERCOSURBOL, MERCOSURCHL, SAFTA	708
ECOWAS	708
AUSSING, BANGKOK	574
USAISR	547
ASEANKOR, ECOWAS, JPNMYS, JPNTHA	458
MERCOSURBOL, MERCOSURCHL	409
AUSTHA	401
PANEURO, EUCHL, EUMEX, EUZAF	383
PRYPER	346
ASEANCHN, CARICOM, CHLCHN	334
AUSSING, MERCOSUR, MERCOSURBOL, MERCOSURCHL, SADC	307
P4, THANZ	294
AUSSING, PANEURO, EUCHL, EUMEX, EUZAF	276
CACM-RD	275
ARGBRAPER, PRYPER, URYPER, ARGCOL, ARGECU, ARGVEN, BRACOL, BRAECU, BRAVEN, PRYCOL, PRYECU, PRYVEN, URYCOL, URYECU, URYVEN, CANDINA, CHLPER, JPNTHA, MERCOSUR, MERCOSURBOL, MERCOSURCHL, SAFTA	272
AUSTHA, USACOL, USAPER	259
BANGKOK, MERCOSUR	242
CHLKOR	236
ASEANKOR	233
ARGVEN	229
CHLMCCA, ECOWAS	218
AUSNZ, P4, THANZ	211
JPNMYS	202